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ABSTRACT

This report describes the Learning Disabled College Writer's Project, implemented at the University of Minnesota during the 1985-86 school year and designed to aid learning disabled college students master composition skills through training in the use of microcomputer word processors. Following an executive summary, an introduction states the need for such a program, the intent of the program, and what it consists of. Section 1 of the report offers a program description, including information about microcomputer word processing training, the employment of microcomputers in freshman composition, and career exploration and transition to employment. Section 2 lists eight performance objectives, including (1) the creation of a research base, (2) curriculum design, (3) the identification of participants, (4) pilot offerings, (5) transition to employment, (6) evaluation, (7) dissemination of the findings, and (8) cyclic planning. Seven evaluation hypotheses are also included, such as the suggestion that the writing curriculum will allow learning disabled students to write at levels comparable to their nondisabled peers, and that career networking intervention will lead students to report increased motivation in academic pursuits. Section 3 contains a student profile, while Section 4 contains conclusions and recommendations. (Training guidelines, student comments, and 15 tables are appended.) (JC)

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Learning Disabled College Writers Project

EVALUATION REPORT
1985-86

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THE LEARNING DISABLED

COLLEGE WRITERS' PROJECT

EVALUATION REPORT

1985-1986

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EXECUTIVE SUMMARY

The Learning Disabled College Writers Project was developed to aid learning disabled college students master composition skills through development of skill in the use of microcomputer word processors. The intervention included initial training on the microcomputer, two terms of freshmen composition coursework with microcomputer support, and a career exploration component.

The Project summarized the literature on using microcomputers in mainstream writing instruction, characteristics of learning disabled students, writing instruction for learning disabled students, and writing-related career and vocational options for learning disabled students. The annotated bibliography, as well as papers describing the participants and procedures of the Project were presented at conferences, published in journals, and publicized as available at cost.

While Project staff considered the research literature in the design of the writing curriculum, the major points were already included in the existing College composition curriculum with the exception of access to word processing. More than 3000 students were informed of the Project, 21 learning disabled students participated in the three sections of narrative composition and three sections of expository composition offered Winter and Spring quarters respectively.

The two-hour training in use of microcomputer and word processing software appears to be necessary and sufficient to prepare students for the course. The students held very positive opinions about the course and their instructors, thought they mastered the course content, and felt that the microcomputers made writing easier and more fun.

The learning disabled students entered the Project with writing skills significantly below those of the non-disabled students. While the skills of both groups improved, the learning disabled students did not improve to the point that their performance was comparable with non-disabled students as demonstrated on standardized test situations.

The performance of the two groups in College coursework, however, both before and during the intervention, was very similar. Students held a C average, and had an overall credit completion ratio of .86 or higher. Both groups had a B average in the composition courses with approximately 90% completion.

Thirteen learning disabled students participated in the career exploration component. The one-on-one career exploration component had difficulty maintaining learning disabled student involvement over the two quarters, a more structured approach was developed for the second year of the Project. The computer and video career exploration tools were highly rated. Students participating in the career component felt that it enhanced their motivation to do well in college.

There were no differences in self-esteem between the learning disabled and non-learning disabled students. While the intervention did not result in a significant increase in self-esteem, it did result in a significant decrease in writing apprehension.

Except for the over-representation of learning disabilities, the Project participants were very similar to the College freshmen as a whole on demographic characteristics. Their writing skills as measured on entry placement tests were lower, falling at the 19th percentile rank on College norms. They were less likely to be employed while attending college. If the learning disabled student had a work history which required writing, they were likely to have had difficulty with the job because of their poor writing skills. The learning disabled students were also less likely to indicate familiarity with microcomputers.

The Learning Disabled College Writers' Project Evaluation Report

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Introduction

The Learning Disabled College Writers' Project (Project) began August 1, 1985 as a program to aid learning disabled college students in mastery of the skills required to pass Freshmen Composition with a grade of C or better while using a microcomputer word processor. Learning disabled students often have difficulty writing well enough to pass required courses in composition and to perform well in humanities and social science courses which require written reports and use essay exams. This barrier in their education can reduce opportunities for career success and may result in lowered self-esteem. The microcomputer word processor was viewed as a tool to help students master composition by making the physical task of writing and revising easier, and providing supports such as spelling checks and an orderly format which students can use to bypass some of the more apparent characteristics of their disability. If the barriers to writing well can be broken, barriers to college retention and academic success may be reduced and transition to a career may be enhanced.

The Project intends to impact the professional and educational communities by increasing attention to long-term modifications in the writing process for learning disabled students which will promote their academic and occupational success. This will be accomplished through the annual review and synopsis of the research literature on learning disabilities, composition and microcomputers and the promulgation of articles and presentations describing the Project intervention and its outcomes. It is the intent of the Project to create an effective and replicable curriculum which would build on and supplement a general Freshman College Composition curriculum. It is the intent of the Project to provide service interventions which are within the reach of most post-secondary institutions, without requiring an extraordinary outlay in resources of time, equipment or staff. It is the intent of the Project to increase the fields' understanding of the communication problems of learning disabled students and effective interventions while identifying key areas for further study.

The Project can be viewed as consisting of two major components. One component is the curriculum and services offered to students: the training on the microcomputer word processors, the composition courses, and the

career planning services. The emphasis is on student satisfaction with the Project intervention and their performance outcomes. The second component is the attainment of the performance and evaluation objectives, and the distribution of this information to the professional and educational communities via the synopsis of research and presentation of information on the Project student intervention.

The conclusions and recommendations presented in the final section of the report summarize the results of the first year and suggest questions and issues for consideration and implementation during the coming years of the Project.

I. Program Description

Microcomputer Word Processing Training

The winter and spring training provided by the Project computer lab teaching assistants was well received and appeared to meet the needs of the students. Seventy-eight students entered the Project in Winter quarter, 1986, by enrolling in the microcomputer sections of GC 1421, Writing Laboratory: Personal Writing. Seventy-five of these students completed the training in November or December. Eighteen students entered the LD College Writing Project in Spring quarter and enrolled in GC 1422, Writing Laboratory: Communicating in Society. Sixteen of these students completed the March/April training. Students who did not complete training indicated they were proficient on the microcomputer and word processing software and did not wish to participate.

Training Program

The training was developed to give students an introduction to the microcomputers and word processing software which would be available to them in class and the open lab while they were in the Project, with an emphasis on learning the software. Students had the option of training on the IBM-PC, the Apple IIe, or the Macintosh. The word processing software selected by the Project was judged by the Project staff to be the easiest to learn for these microcomputers which accomodated the course writing requirements. Bank Street Writer was used on the IBM and Apple IIe. The tutorials used in the training program are training exercises created by Bank Street. MacWrite was used on the Macintosh, with a tutorial created by Lynda Price, Project LD Specialist, particularly for use with learning disabled students. The training syllabus is provided in Appendix A (page I-1).

Training was scheduled at the convenience of the student and trainer. The training was a one time, one-on-one session (occasionally two students to

one instructor). The student selected the machine they were interested in learning to use; if they had no preference, they were randomly assigned to one of the three machines. Training on the Apple IIe generally took about 45 minutes; the IBM, between 45 minutes and two hours; and the Macintosh, between one to two hours. Training took the least time on the Apple IIe because many of the students had used this microcomputer in high school and its tutorial appeared easiest for students to understand. The Macintosh training required additional time for students to master use of the mouse. The IBM training included material not covered in the other training sessions, and the keyboard was more difficult for students because of the extra keys and unlabelled keys. Training generally took place in the Project's computer lab. Training for the Winter quarter class was hampered by remodeling efforts in the computer lab (painting during some training sessions), and the need to use other University microcomputer facilities due to the late delivery of the IBMs.

The trainer was available to orient the student to the computer and software at the start of the training, and to help them if they had a difficult time. The approach was to encourage the student to try to work through the tutorial and discover how the microcomputer and software work on their own, rather than demonstrating the machine or being 'very helpful'. This approach was to encourage students to work independently on the machines. The training was considered complete when the student could, without assistance, load and eject disks, and create, save, close, and retrieve a file. There were no differences in approach for the learning disabled and non-learning disabled students. Several learning disabled students did require longer training sessions, but only two students exceeded the two hour block scheduled for training. Students were allowed to use the microcomputer the full two hours reserved for their training if they wanted to do so. Students receiving training on the Macintosh were permitted to keep the written tutorial guide; students trained on Bank Street received no handouts.

The tutorials as developed were generally effective, but some changes were made. The Apple Bank Street tutorial does not specifically cover how to save a file, how to retrieve a file, and how to print out a file; these procedures were added by the trainer in both winter and spring training sessions. Lessons related to "copying paragraphs" and "find and replace" were deleted in the spring training, reducing the training time needed to

about 30 minutes. Only four of the IBM Bank Street lessons were retained for spring training, reducing the training time to 30-45 minutes. No changes were made in the Macintosh training.

On the first day of class, students were reminded how to turn the machines on and off, and how to insert and remove the disk. Students were encouraged to go through the tutorial again as a refresher. An additional training session was given to several students during the quarter who requested to learn how to use a second microcomputer.

Method

Students were questioned about the microcomputer and word processing training they had received near the end of the first quarter they were enrolled in the microcomputer writing course. The training survey was distributed as part of the overall course student opinion survey, and in conjunction with other research and evaluation measures the students were asked to complete. This survey generally required less than five minutes of student time to complete. In spring, additional efforts were made to ensure completion of the forms by students who were absent the day the surveys were distributed in class. The evaluator distributed and collected the forms in class, other project staff collected forms from students absent the day the forms were distributed.

Winter 1986 (GC 1421) Results

The student opinion survey for 1421 included five questions asking for student opinions of the training session. Fifty-seven students completed this survey in class. Of the students who completed the survey:

- 94% indicated that the training sufficiently prepared them to take GC 1421 using microcomputers.
- 93% indicated that they used the skills they acquired in 1421.
- 55% thought the training was very helpful.
- 39% felt very comfortable using the microcomputer by the end of the training session.
- 62% thought the instructors were very clear in presenting and explaining material.

Several students indicated a need for more practice time. A few students were already familiar with word processing programs. Two students indicated they were anxious about the class. The patience and helpfulness of the training instructors was noted. Suggestions which seem more pertinent to the class than to the training session are 'more writing assignments' and 'a greater variety of topics to write on', and that the teaching assistants should be very knowledgable in writing as well as word processing. The complete survey results are presented in Table 1 (page I-2).

Spring 1986 (GC 1422) Results

All new students in the Project were asked to complete the survey in Spring. Of these eighteen students, two indicated that they did not participate in the training because they were already familiar with microcomputers and the word processing software. Eighteen completed surveys were collected however, indicating that two students may have completed the survey twice, or a survey was collected from a student who completed the training in winter. Since it was unknown which of the surveys might be duplicates, all eighteen responses were included in the following analysis:

- 94% indicated that the training sufficiently prepared them to take GC 1422 using microcomputers
- 100% indicated that they used the skills they acquired in 1422.
- 78% thought the training was very helpful
- 44% felt very comfortable using the microcomputer by the end of the training session
- 72% thought the instructors were very clear in presenting and explaining material.

Several students made suggestions for improving the training sessions. One student indicated a desire for more in-depth training. Another student indicated that the training was a refresher course, as s/he already knew how to use a word processor. One student indicated that the University dormitories now have IBM PC's and the word processing software "Wordstar". This software is not available in the lab and not covered in the training. A student suggested developing a brief manual to review the microcomputer keyboard and its functions that students could keep for their use at home and in class and open lab. Complete survey results are found on Table 2 (page I-3).

Conclusions

The training in how to use microcomputers and word processing software appears to be a necessary precursor to enrolling in the microcomputer section of the writing course for most students. The changes made from winter to spring seem positive. While there is still some anxiety about microcomputers, one to two hours of training is sufficient for most students to feel comfortable using a microcomputer and to master the software. There is no indication from student comments that the training program should be altered or needs improvement.

Recommendations

The Project should examine the potential for problems caused by the proliferation of microcomputer facilities on campus. The most serious problem is a possible lack of compatibility with what the Project offers in training and in lab, and what software is most available to students throughout their tenure at the University in other microcomputer facilities. While the initial training may not include Wordstar and other word processing software because of their complexity, if they are the commonly available software on the micros in University dorms and micro labs to the exclusion of Bank Street and MacWrite, additional training on these software should be considered during the quarter to ensure the transfer and continued use of student word processing writing skills. Additional training sessions during the quarter would allow students to become knowledgeable on all three microcomputers and both word processing software systems. This would also increase the chances of transfer and continued use of the student word processing skills.

Several students indicated they were already proficient on the microcomputer and word processing software. The training should continue to be a voluntary activity for these students: available to those who want the review or to learn on another microcomputer, but not required.

Future evaluations should also look at what machines students used and their opinion of the tutorial materials provided.

"Comfortableness" on the micro remains a problem for a subset of the students. The feeling of uncomfortableness may be related to lack of full mastery at the end of one training session, and either encourage or

discourage students from entering the class which depends on their use of the microcomputer. An opinion survey distributed at the end of the training session and examination of those students who received training but fail to enroll in the course may provide information on why students who initially show interest fail to enroll in the Project.

Freshman Composition with Microcomputers

The writing curriculum of the Project consists of two college entry-level writing courses: GC 1421, Writing Laboratory: Personal Writing and GC 1422, Writing Laboratory: Communicating in Society. Completion of these two courses with a grade of "C" or better fulfills the freshmen composition requirement. Project staff and the instructors for the Project curriculum met in early fall to plan revisions in these courses for the Project curriculum. A review of the composition and learning disabilities literature suggested no change from the standard course texts and methods, with the exception that these sections would include the resource of microcomputer word processing training, an expectation that all work would be word processed and free access to the microcomputers throughout the quarter.

Three Project sections of a writing lab were offered each quarter. Enrollment in each section was approximately twenty-six students, with approximately eight Learning Disabled students in each section. The learning disabled students were mainstreamed; no special resources or assistance were provided to the LD students. Instructors knew that several students in the course were learning disabled, but were not informed which students were disabled. Each class met twice a week. The class met as a whole once each week for two hours; this time was available for lecture and class discussion, as well as working on the microcomputers, small group discussion and one-on-one with another student, or conferencing with the instructor. The class was divided in half for the two hour lab session each week; students were encouraged to work on their writing assignments during class, either on the microcomputer (machine to student ratio of 1:1), in small groups and one-on-one with students, or conferencing with the instructor.

The two instructors were assistant professors who used a decentralized classroom approach to instruction. The instructors had recently completed their graduate work and joined the College faculty; while they had some experience teaching college writing, they had not necessarily taught these particular courses before. The Project also employed two half time undergraduate teaching assistants to serve as Lab assistants. Their

responsibilities were to provide training and assistance in the use of microcomputers and software during the classes and open lab times.

The Writing Courses

The goal of GC 1421, Personal Writing, is to enable students to clearly communicate their personal experiences through development of their narrative writing skills. The goal of GC 1422, Communicating in Society, is to enable students to develop their analytic writing skills, the presentation of fact and support for an opinion. The texts for both courses were College produced materials: Notes for the General College Writing Laboratory: Handbook, 12th edition and Notes for the General College Writing Laboratory: Narrative and Expository Writing, 12th edition; both texts are available through the University of Minnesota Bookstore.

For each course, students were required to write seven or eight essays, and to maintain a journal on their writing experience. Rough drafts of essays were reviewed by the instructor (and often another student) and returned to the student for revision. Other course requirements included regular attendance, word-processed essays, and turning in papers on time.

Major objectives were common to both courses. Students were expected to use standard English. Strategies to plan, organize, revise and edit essays; learning to recognize and eliminate errors; and the importance of intended audience were emphasized in each course. It was expected that students would learn to review the writing of their peers and give feedback, as well as to solicit feedback and use it to improve their writing. Students were also expected to learn to operate a microcomputer (either the Apple IIe, Macintosh or IBM-PC) and word processing software (MacWrite or Bank Street Writer), and to use the unique features of the computer and software in drafting and revising their essays (eg, cut and paste, spelling checks).

The Open Computer Lab

The classes met in the microcomputer lab twice a week during their regularly scheduled class time. The Computer Lab was open for use by the students from 8:00 am to 5:00 Monday through Friday (9:00 until 8:00 pm on several nights each week in Spring quarter), except when the Lab was scheduled for classes. The Project courses were scheduled for six hours on Monday, Wednesday and Friday. The Lab was staffed by one of the two Lab

Assistants assigned to these courses when it was open. Students could sign up in advance to reserve a computer for their use at a certain time. Generally, a computer was available when a student wanted to use one. The open lab provided students with the time necessary to work on their papers and journals outside of class, reinforcing the expectation that students would use the word processor for initial drafts of the paper and journal as well as the final draft.

At the beginning of the course, the role of the Lab Assistants in providing help with composition was questioned. Students perceived the assistant as a teaching assistant for the course and asked questions related to the composition and revision of essays as well as the use of computers. One instructor preferred students to consult the instructor or other students when there were questions; the other instructor encouraged the lab assistant to assist students with their writing questions. If the assistants were unsure of the assistance they could provide the students, students with writing questions were referred to their instructor, another student, or to the College Reading & Writing Skills Center (free walk-in tutoring and assistance for students with writing problems or questions).

Method

During the last three weeks of the quarter during a regularly scheduled class period, students were requested to complete the University of Minnesota Student Opinion Survey (Form OS), a 16 item Likert scale distributed to evaluate student opinions of the course and instructor. Appended to this survey were an additional set of questions covering course objectives, convenience of the computer lab, and time spent on the microcomputer.

The survey generally took from 10 to 15 minutes for students to complete, longer for a few learning disabled students. Evaluation staff administered the survey and collected the results, informing students that the instructors would not receive a copy of the results until the quarter ended.

Aggregate results of College freshmen opinions of required courses suggest that 55% to 65% of students generally rate the course and instructor globally and on specific characteristics as "very good" to "excellent", with lower ratings common for items relating to textbooks and

student ability to deal with the course content prior to enrolling in the class.

GC 1421 (Personal Writing) Results

Three sections of Project GC 1421 were offered winter quarter, 57 of the 78 students enrolled in the course completed the opinion survey. The results are based on the aggregate of the three sections.

Students were very pleased with the course instructors, with 79% of the students rating their instructor's teaching as very good to exceptional overall. Student ratings of very good to excellent exceeded 65% for instructor clarity in presenting information, rapport with students, helpfulness of feedback, and success in getting students to think and be interested in the course. Students were less enthusiastic about instructor's attention to what helped them learn best, with only 53% of the students rating the instructors as very good to excellent. Ninety-five percent of the students rated the helpfulness of the Lab Assistants as good to excellent.

Ninety percent of the students thought the course overall was very good to excellent. Most students indicated that they did not have a good grasp of the course content before they enrolled (23% rated their ability as very good to excellent), that their motivation to do well was high (57%), and that they learned very much in the course (63%). They felt the essays measured their knowledge and understanding of course content (56%) and covered the important points in the course content (59%). They were less supportive of the quality (46% rated them very good to excellent) and interest level (39%) of the textbook and handouts. Complete survey results are found in Table 3 (page I - 4).

Students were also asked to give their opinion of attainment of course objectives. Attainment was rated on a one to five point scale of terrible, poor, passable, good and excellent. Students indicated they felt they attained course objectives. Eighty-one percent indicated a good to excellent skill in planning and organizing an essay. Awareness of the influence of the intended audience was high (82% good to excellent). Eighty-six percent felt good to excellent about their ability to revise and edit an essay using a word processor, compared to 41% without a word processor. Sixty-three percent felt they had good skills in recognizing grammatical errors, while 70% were confident of their ability to recognize spelling errors. Students felt confident of their ability to give other students good feedback about their

writing (75%) but were not quite as confident of their ability to talk about their writing (60%).

All students who completed the course earned a grade of C or higher. The course completion rate was 95% for the LD students, 96% for the non-LD students. The average course grade was a "B", average grade point for the course was 3.05 for LD students and 3.23 for non-LD students.

Students were asked about the microcomputer laboratory. More than 90% of the students found that the lab was open enough hours for them to complete their assignments, and that the lab was open at convenient hours. A few students indicated the lab was inconvenient because of their employment and class schedules; several complained that using it as a writing classroom interfered with their access to the machines. Other students indicated they had access to a micro in their dorm or home. Learning disabled students spent an average of 24 hours per week in the open computer lab during this quarter, while non-learning disabled students spent an average of 17 hours per week.

GC 1422 (Communicating in Society)

Three sections of Project GC 1422 were offered winter quarter; 65 of the 76 students enrolled in the course completed the opinion survey. The results are based on the aggregate of the three sections.

The students remained pleased with their instructors, with 97% of the students rating their instructor's teaching as very good to exceptional overall. Student ratings of very good to excellent exceeded 70% for instructor clarity in presenting information, rapport with students, helpfulness of feedback, attention to what helped them learn best, and success in getting students to think and interested in the course. Ninety-eight percent of the students indicated that the Lab Assistants were very helpful.

Eighty-eight percent of the students thought the course overall was very good to excellent. Students again indicated that they did not have a good grasp of the course content before they enrolled (23% rated their ability as very good to excellent), that their motivation to do well was high (62%), and that they learned very much in the course (72%). They felt the essays measured their knowledge and understanding of course content (65%) and

covered the important points in the course content (76%). They were much more positive about the text and handouts for this course; 73% of the students rated the quality as very good to excellent, while 51% felt they were of very good to excellent interest. Complete survey results are found in Table 3 (page I - 4).

Students were also asked to give their opinion of attainment of course objectives. Students were quite confident of their ability to plan and organize an analytical essay (79% rated their ability as good to excellent) and use Standard English (86%). Awareness of the influence of the intended audience remained high (74%). Sixty-six percent indicated good to excellent knowledge of drafting and editing strategies. Good to excellent ability to revise and edit an essay went from 35% to 86% with the use of a word processor. Students were quite confident about their ability to give other students good feedback on their essays (74%) while 63% felt this level of confidence in their ability to talk about their writing in class.

All students who completed the course earned a grade of C or higher. Course completion rates for GC 1422 were 89% for the LD students and 95% for the non-LD students. The average grade for the course was still a "B", but slightly lower than the GC 1421 grades: 2.89 for the LD students and 3.04 for the non-LD students.

Students were asked about the microcomputer laboratory. Overall, students found that the lab was open enough hours for them to complete their assignments and that the lab was open at convenient hours (99% and 92% respectively). Students still expressed interest in more evening hours, and desire to use the lab during hours scheduled for the course. Learning disabled students spent an average of 9 hours per week in the open computer lab during this quarter, while non-learning disabled students spent an average of 7 hours per week.

Conclusions

Students were very positive about the instructors, the courses, and the computer lab. They felt they were mastering the course content. Student comments indicated that they found the microcomputers made writing easier and more enjoyable. Students also indicated strong support for the teaching style and class process.

Recommendations

The text and handouts for the two courses came from the same source, yet the materials for 1422 were rated by students as of higher quality than the materials for 1421. There was no appreciable difference in the interest level of these materials for students. During the 1986-87 Project year, student interviews should be conducted to determine what they like and dislike, and what they view as "good" or of high quality in the 1421 and 1422 materials. This information may be helpful in improving the quality of the 1421 materials.

Students rated the courses, the instructors and the microcomputers very highly. A research question to be addressed in the coming years is differentiating the roles that the decentralized classroom and the microcomputer word processor play in student satisfaction and achievement. The decentralized classroom approach to teaching appears to enhance student learning by doing and learning through their peers. These characteristics seem likely to enhance self-esteem and promote transfer of skills to other settings. It is possible that a vital component of the Project composition curriculum is the teaching style. It is also possible that the independence fostered by the decentralized classroom and the microcomputer interact, for a stronger effect.

Career Exploration and Transition to Employment

The career exploration component of the Project was available only to learning disabled students participating in the Project microcomputer composition classes. This component was originally planned as a special section of an existing course (Career Planning, GC 1502), in which students would enroll winter quarter. In fall of 1985, Project staff decided to use a one-on-one career education approach with the learning disabled students. This change was submitted as part of the Continuation Application in March 1986 and approved.

The Project Career Specialist contacted participating learning disabled students by letter or a telephone call to their home, or a note distributed to students during composition class. The contact was to notify students that free career exploration services were available, and to encourage them to take advantage of this opportunity. The students were not required to participate in the career services in order to enroll in the Project writing courses.

Students were asked to indicate their interest in participating in the career exploration program by 1/30/86. Thirteen of the twenty-one learning disabled students enrolled in the project agreed to participate in the career exploration component. Participants in the career exploration component were to take the Strong-Campbell Vocational Interest Inventory (SCII) by 2/15, then use Pathfinder and meet with the career specialist in small groups by 2/28 for an interpretation of the results. Computerized systems for career exploration (SIGI+ and Discover) were available for student use. The Career Specialist worked with the students individually to assist them in identifying career interests and possibilities, and increasing awareness of job skills, strengths and weaknesses. Students were assisted in scheduling informational interviews with employers to enhance their understanding of the careers they were potentially interested in pursuing.

It was assumed that the learning disabled students would have a job history of difficulties with writing. Based on information collected through initial interviews of the sample of learning disabled and non-learning

disabled students who completed the Project, learning disabled students were as likely as non-learning disabled students to have held jobs which required writing skills. Seventy-one percent of the learning disabled students who held jobs which required writing skills indicated they had problems in their job because of their writing ability; none of the non-learning disabled students indicated that their writing ability caused problems. On the other measures, there was little difference between the learning disabled and non-learning disabled students: both groups expected their experience with computers to help them get a job, and just over half of the students had thought about different careers but had not yet made up their minds, and indicated an intention to use college career and education major counseling services. This information is detailed in Table 4 (page I-11). All learning disabled students were surveyed to determine their satisfaction and involvement with this portion of the program.

Method

During the last three weeks of Spring Quarter, the 17 learning disabled students completing the Project writing curriculum were asked to complete a one page survey on the career component. The survey items covered student participation in the available career services and the effects of this participation. The survey took less than five minutes for students to complete. Project staff administered the survey when the student came in for follow-up testing and interviews which were part of the research data collection.

Results

The 17 learning disabled students completing the Project filled out the survey; 11 of these students participated in the Career component. The survey results are unclear why the remaining LD students did not enroll in this component. Lack of time and schedule conflicts were rejected as reasons for not participating; one student said s/he was not interested and another student said s/he did not understand the program; the remaining students indicated there was another reason, but did not state that reason.

Of the students participating in the career component, half felt that the Strong Campbell increased their knowledge of careers that matched their personal interests. The Pathfinder videodisc program for interpreting the

SCII results was generally viewed as helpful. Eight of the eleven students used either the SIGI+ or Discover computer program and indicated that these programs provided very useful information on careers. Four students completed employer interviews; these were generally viewed as helpful.

Most students indicated that they had a better idea of what courses to take to complement their career interests (64%), and that they thought having specific career interests would help them to be more successful in college courses (82%). Fifty-five percent thought the career exploration component increased their motivation to do well in college. These results are detailed in Table 5 (page I - 12).

Students enrolled in the Project microcomputer writing course spring quarter were also asked about the influence of the microcomputer composition courses on their career plans. The responses of the learning disabled students were similar to those of non-disabled students, with 60% of the students indicating the courses affected their attitudes about possible career choices, 85% indicating the writing courses helped them develop skills they would need for employment, and 89% to 100% of the students indicating that they expected to use a computer in their future jobs. These results are presented in Table 4 (page I - 11).

Conclusions

The work history of learning disabled students appeared similar to the non-learning disabled students, with the exception that most learning disabled students who had held jobs that required writing had had difficulties on the job because of their writing ability. Student involvement in the one-on-one career component was difficult to develop and maintain throughout the two quarters. While this model provided increased opportunities for individualized attention, the students did not take advantage of the opportunity.

The small number of participants make it difficult to draw conclusions about the intervention. Student ratings were generally uncertain to positive about the intervention, indicating less satisfaction with this component than the other components in the Project. The strongest areas of the career exploration component are the use of computerized systems to obtain information on various careers and to understand test results.

Recommendations

The one-on-one component was expensive in terms of the amount of staff time required to provide services to a small number of students. Project staff should minimize the need for resources and special staff in future revisions of this Project component to enhance the feasibility of replication in other post-secondary institutions.

Student interest and use of computerized resources to explore career opportunities was the strength of the program this year. Continuation to explore resources in this area and other applications of the microcomputer to aid transition to employment are encouraged.

Project staff decided during the year to return to the career planning course as the format for the career component. The course will include a weekly lecture supplemented with a weekly seminar or discussion group reserved for the Project LD students and led by the Project LD/Career Specialist. It is expected that this format will provide some of the needed structure to promote student involvement and achievement of the objectives of this component.

II. Performance and Evaluation Objectives

Performance Objectives

The performance objectives are the procedures and activities listed in the grant proposal and carried out by Project staff in the development and implementation of the microcomputer composition curriculum, career component, and dissemination of information during the first year of the Project.

Performance Objective 1: Creation of a Research Base

By October 15, 1985, a research summary of the literature in the fields of writing and microcomputers, composition for learning disabled adult students, and related areas is completed for use by Project staff in curriculum design.

The research summary, entitled Composition, Word Processing, and the Learning Disabled College Writer: An Annotated Bibliography, was completed in November, 1985 and published in January, 1986. The contents of the bibliography, while not complete by October 15, were available to Project staff in their design of the writing curriculum. The bibliography was updated in July 1986 to include research references through May of 1986.

The initial research summary included approximately 150 references and focused on four major areas: the use of microcomputers in mainstream writing instruction, the characteristics of learning disabled college students, writing instruction for learning disabled students with a special emphasis on the role of technology, and writing-related career and vocational options for learning disabled college students. Each entry was coded by these areas to assist users in identifying references relevant to their interests. Most references fit more than one of the code categories, indicating these fields are overlapping in both the research and thinking of

today's professionals and practitioners. Many of the research findings were tentative, however, due to the relatively recent advent of microcomputers and attention to learning disabled students at a college level. The first supplement to the bibliography included 38 references and used the coding scheme described above.

A one page evaluative survey was included in the document as the first page of the bibliography. The survey was intended to provide Project staff with information on user satisfaction with the format, content of entries and coverage of the research. The back of the survey included the address of the project, so the form could be folded to form its own envelope. No surveys were returned to the Project, indicating either a reluctance to participate in the survey or a lack of use of the research summary.

Project staff indicated that their impression is that the bibliography was most often requested by people who intended to use it in writing program proposals for external funding. Persons requesting the bibliography will be followed up in the second year to determine the usefulness of the document in their setting.

Performance Objective 2: Curriculum Design

By November 30,1985, the research findings are translated into a curriculum plan for varied-media offerings of GC 1421 (Writing Laboratory: Personal Writing) and GC 1422 (Writing Laboratory: Communicating in Society) to be taught winter and spring quarters respectively.

The Project staff and course instructors met during Fall Quarter 85 to plan revisions to the existing curriculum for GC 1421 and GC 1422. The annotated bibliography compiled by Project staff, as well as their professional expertise and resources provided background material. The research literature provided little guidance for revision, major points were already included in the structure and content of the existing curriculum. Project staff decided to use the existing texts and standards, the only changes would be the microcomputers, training and open lab time. No additional support or resources were added to accomodate the learning disabled students.

Writing samples, which would be used as Project measures of student skill and ability, will be collected at the beginning and end of each course. These samples will be graded in-class assignments, written in two one-hour sessions.

The literature suggested an optimum ratio of 2:8 students to 1 computer, with open lab time for students to work at their own pace and structured class time for more basic writing training. A 90 minute training session on the computer and software before the quarter starts was planned to give students general microcomputer and word processing operating knowlege. The writing classes will meet twice each week. One session will provide a 2:1 student to computer ratio; the second session will offer 1:1 ratio to provide time for ongoing structured training in writing. Free open lab time will be available on a daily basis from 8:00 am to 5:00 pm (except when classes are scheduled to meet in the lab, six hours on Monday, Wednesday & Friday). Students will be encouraged to attend at least two hours of lab time each week; students may reserve machines and sign up for unlimited time as computers are available. Project lab assistants will provide additional training and support in the lab.

Three sections of GC 1421 were offered Winter quarter, and three sections of GC 1422 were offered Spring quarter.

While the research base was completed and reviewed by staff, it was not useful in suggesting changes and revisions in the curriculum for the Project. To the extent that the LD students are successful in these courses, it is suggests that no special adaptations are required for the mainstream curriculum. The only adaptation required by the microcomputer technology is the availability of the open lab and brief initial training.

Performance Objective 3: Identifying Participants

By December 15,1985, 20-24 learning disabled students are identified and/or referred for participation in the Project. (Students who are not learning-disabled are also recruited for the Project.)

More than 24 learning disabled students were identified and referred to the project for participation. Twenty-one learning disabled students actually participated in the Project. Students who expressed an interest but did not follow through with the course registration and testing, or who dropped out during the first week of the quarter are not included in this number.

A one page flyer advertising GC 1421 was sent to 3000 General College students along with their registration materials for Winter Quarter 86. The flyer emphasized that students would receive their basic computer supplies and lab time at no charge when they enroll in the course, that no experience or skill in typing or keyboarding was required, and that students completing 1421 would have first priority in enrolling in GC 1422 during Spring 86. This flyer was used to recruit both learning disabled and non-learning disabled students.

Special efforts to recruit learning disabled students included discussion with and posted announcements seeking referrals and inquiries about the Project in the University Office for Students with Disabilities, the College faculty newsletter, the College Student Counseling Office and the TRIO Special Services Office.

Written permission by Project staff was required to enroll in the courses. This was to ensure the proper balance between learning disabled and non-learning disabled students in the class, and to ensure that the students were willing to provide the additional information and participate in the testing required for the research.

Performance Objective 4: Pilot Offerings

In Winter Quarter 1986, two sections of GC 1421 will be offered, each enrolling 10-12 learning disabled students and 10-12 non-learning disabled students. In Spring Quarter 1986, two sections of GC 1422 will be offered, each enrolling 10-12 learning disabled students and 10-12 non-learning disabled students.

Three Project sections of GC 1421 were offered Winter Quarter 1986, and three sections of GC 1422 were offered in Spring Quarter 1986. Since the purpose of the courses was to provide a replicable mainstream writing course, the class ratios of learning disabled students to non-learning disabled students was changed from 1:1 to approximately 1:2, or approximately 8 learning disabled students to 18 non-learning disabled students. The three writing sections allowed participation of 20-24 learning disabled students while maintaining normal class size and a more mainstreamed student mix.

Twenty-one learning disabled students enrolled in the courses and participated in the Project. Seventeen learning disabled students completed the sequence of GC 1421 and GC 1422. Seventy-eight non-learning disabled students enrolled in the courses, 39 completed the sequence.

Performance Objective 5: Transition-to-Employment

In Spring Quarter 86, each learning disabled participant will enroll in a specially designated section of GC 1502, Career Planning, during which interests and aptitudes are assessed and communication-intensive career networking is accomplished.

The Project received permission to change this objective from participation in a course to participation in a one-on-one career education and exploration process. All 21 LD Project participants were contacted and encouraged (but not required) to participate in this program; thirteen actually participated.

Students were given the opportunity to take the Strong Campbell Interest Inventory and work with several computerized career systems to explore their career interests. Informational interviews with potential employers were encouraged. The services available to students were underutilized and career networking was not accomplished.

Since most of the students are freshmen, a career may seem to be too far away for serious consideration at this time. It became apparent that just making the services available to the student at no cost is an insufficient catalyst for learning disabled students to use them.

Performance Objective 6: Evaluation

By July 30 1986, conduct a comprehensive evaluation to determine the effectiveness of the project in meeting the objectives and goals articulated in the work plan; measure the progress of the project in achieving funded objectives; measure the effect of the project on learning disabled post-secondary persons being served; provide an internal feedback mechanism using evaluation findings as information to aid in the initiation of project improvement and staff development.

This report, as well as the evaluation objectives reported in this section, addresses the progress in meeting Project objectives and the effectiveness of the intervention on both learning disabled and non-learning disabled students served. The evaluation was not completed until January, 1987. Information needed to complete the evaluation was still being coded, entered and analyzed throughout the summer and fall. Spring Quarter ends in mid-June, and student academic information is not available until mid-July. Even assuming more efficient data handling as Project staff become familiar with the system, the deadline for this report should be moved back to August 30 to permit analysis and consideration of Spring Quarter data.

The evaluator periodically attended Project staff meetings throughout the year to keep up to date with Project activities and issues. These meetings were a forum for discussion of information needed to answer the research questions, appropriate instruments and data collection methods, efficient organization and storage of data, and data analysis and

interpretation. The evaluator often met with Project staff individually to discuss the design of instruments and the organization and coding of data. The evaluator also provided individual performance and student opinion feedback to Project staff instructing the courses and running the open lab.

Performance Objective 7: Dissemination

By September 15, 1986, the dissemination plan is implemented.

The research summary (Bibliography) was submited to ERIC in February 1986, and was to be available for distribution later in the year. Twenty-six copies were distributed by the Project through mail requests (mostly to College Student Services Offices including learning and study skill centers and services for the disabled) through August, 1986. Numerous copies were distributed to interested attendees at conferences on computers, writing and learning disabilities, where staff presented information on the Project development and results.

Specific intervention strategies and information on the Project were distributed through conference presentations and research articles, including:

National Association of Educational Opportunity Program Personnel Conference, presentation, September 1985.

Computer Technology and Persons with Disabilities Conference, sponsored by Cal State-Northridge, presentation, October 1985.

Microcomputers and Basic Skills in College Conference, sponsored by City University of New York, presentation, November 1985.

College Composition and Communication Conference, New Orleans, presentation, March 1986.

National Educational Computing Conference, San Diego, presentation, June 1986.

Association on Handicapped Student Service Programs in Post-Secondary Education Conference, San Diego, presentation, 1986.

Computers and Writing Instruction--Applications and Research Conference, Minneapolis, presentation, August, 1986.

Collins, T. & Price, L. (in press). A guide to selecting word-processing software for learning disabled college writers. Computer Assisted Composition Journal. Also available as a Working Paper of the LDCWP of the Univ of MN-General College.

Collins, T. & Price, L. (1986b). Testimony from learning disabled college writers on the efficacy of word processing in their writing process. ERIC # CF 209594. Also available as a Working Paper of the LDCWP of Univ of MN-General College.

Collins, T. & Price, L. (in press). Microcomputers and the learning disabled college writer. Collegiate Microcomputer. 5(1).

Collins, T. & Price, L. (in press). Micros for LD College Writers: Rewriting the documentation for word processing programs. LD Focus.

A list of the papers, reports and monographs for at-cost purchase was to be announced through key journals and newsletters. Information on available working papers and the bibliography was submitted to journals. The Project staff distributed materials when they spoke at conferences. The Project also published a newsletter several times during the year and mailed it to persons who had expressed an interest in the project. This newsletter listed the working papers and bibliography as available at cost.

Performance Objective 8: Cyclic Planning

By October 1, 1986, updated research summaries, program evaluations and participant reaction are analyzed and intervention strategies are revised and implemented.

Project staff continued to analyze and interpret data throughout the summer and fall of 1986. The sheer amount of information collected on students and the curriculum from November 1985 through June 1986 precluded completion of data analysis, program evaluation and revision of intervention strategies by October 1. The unknowns in the field, including information and instruments, resulted in the study of many variables to attempt to describe the population and to measure change. While analysis of certain portions of the data may continue throughout the coming year, the major portions of the program evaluation and revision of the intervention were completed during Fall Quarter 1985.

Throughout the year, staff met on a weekly basis to discuss the progress of the project and to plan the next steps. Most of the procedures to be followed during the second year were determined from the experiences of the first year -- what worked and what did not work. Discussion of how to proceed in the second year was brought up periodically throughout the first year, with major planning in the late summer and early fall as the results were reviewed.

Knowledge of how to efficiently organize and collect data on Project participants will enhance the processing of information in the coming year. The first year results will allow a reduction in data collected and a more focused set of research questions for the future, which should permit a more timely completion of information generation for use in planning during 1986. Tentative plans for the third year of the Project are to offer the courses in the fall and winter quarters, rather than winter and spring quarters. This would speed up the planning process in the second year, but provide more time for analysis and interpretation of the intervention at the end of the third and final year of the Project.

Evaluation Objectives

The evaluation is to examine the effectiveness of the generic, replicable varied-media writing curriculum, and the effectiveness of the transition-to-work component of the Project in meeting the performance objectives. The explicit hypotheses the evaluation is to address were stated in the grant.

Evaluation Hypothesis 1

The writing curriculum will allow learning disabled students to write at acceptable performance levels comparable to those of their non-disabled peers.

The writing sample measure was developed by Project staff as a holistic measure of writing performance of learning disabled and non-learning disabled college students. The writing sample was collected during class in the first and last week of each quarter. Students were encouraged to use the microcomputers during composition. Students were informed the sample would be part of their grade in the course, to encourage them to do their best work.

The designated topic was to re-create of a single event or incident in which the student had recently participated or witnessed. Students received the topic and instructions in advance. They were given two hours in class over two class periods. While students were encouraged to plan or think about their paper in advance, they could only work on the draft during class. There were no restrictions on length.

The samples were scored in accordance with the CUNY Evaluation Scale for the Writing Skills Assessment Test (Ryzewic, 1982). The scale ranged from one (incoherent, no discernable organization, high frequency of non-Standard English and errors in grammar, punctuation, and spelling) to six (competent organization, appropriate language, assertions supported by

explanation or illustration; grammar, punctuation, spelling and syntax generally correct). Each essay was scored blindly by two graduate students in education. All essays (by learning disabled and non-learning disabled; pre-1421, post-1421 and post-1422; by Project participants and students in other course sections) were placed in a single pool for random assignment to judges to reduce possible bias in the ratings. The inter-rater reliability coefficient was .88.

The Project was based on the assumption that the learning disabled students would enter the program with poor writing skills relative to their non-disabled peers. If the Project intervention was successful, the writing skills of the learning disabled and non-learning disabled students as measured by the writing sample at the end of GC 1422 would be comparable.

The average score on the initial writing sample for the learning disabled students was 3.0, compared to 4.1 for the non-learning disabled students. The average scores on the mid-intervention sample (either last week of GC 1421 or first week of GC 1422) were 3.8 for the learning disabled students and 4.5 for the non-learning disabled students. For the final writing sample, approximately 20 weeks after the initial sample, the average scores were 3.5 for the learning disabled group and 4.5 for the non-learning disabled students (Table 6, page II-14).

The initial performance of the learning disabled students supports the assumption they entered the Project with poorer writing skills. The differences between the scores of the learning disabled and non-learning disabled students at the initial measurement are statistically significant. These significant differences continued over subsequent measurements; the learning disabled students were unable to attain the level of writing skill of the non-learning disabled group.

The writing samples of a non-Project composition class were also rated. The writing skill of these students was lower than the performance of Project students. This finding suggests that the use of the microcomputer may have enhanced everyone's writing performance: to the extent the microcomputer serves as a writing tool, it may be the effective component in the intervention, able to to enhance the performance of both the learning disabled and non-learning disabled students above the performance of non-disabled students who were not using a microcomputer.

Evaluation Hypothesis 2

The writing curriculum will allow learning disabled students to show growth in writing skill from entry to exit equal to or greater than that achieved by their non-disabled peers.

The Project was based on the assumption that the learning disabled students would enter the program with poor writing skills relative to their non-disabled peers. The hypothesis was that the intervention would equally or disproportionately enhance the writing performance of the learning disabled students by providing strategies and technology which would allow them to compensate for their disability. The writing sample provides one measure of growth. A second measure is the entrance and exit Woodcock-Johnson Psycho-Educational Battery achievement subscales for punctuation, spelling, usage, dictation and proofing, and the writing cluster scores for Written Language Aptitude and Written Language Achievement were used to measure growth in writing skill.

The Dictation subtest requires the student to physically write responses to knowledge questions in the areas of letter forms, spelling, punctuation, capitalization and language use (contractions, plurals, etc.). The Proofing subtest presents the student with a series of typewritten sentences, each containing one error which the student has to orally identify and correct. Recognition and correction of errors requires knowledge of punctuation, capitalization, spelling and word usage.

A combined score from items in the Dictation and Proofing subtests provide subscores for Punctuation and Capitalization, Spelling, and Usage. While these categories involve the same items, the re-ordering into sub-scales can provide a more useful analysis of achievement based upon the student's specific skill areas and performance in a mix of written and oral responses. The Written Language Achievement Cluster is a combination of the Dictation and Proofing, and thus is a holistic score for the increase in writing achievement during the intervention. The Written Language Aptitude Cluster is a measure of visual-perceptual, verbal, and mathematical processing abilities, and as a ability measure is expected to be more stable than the achievement measures. The scores presented are raw scores (Table 7, page II - 15). Age equivalent scores are presented in the text as a guide in interpreting the data.

The average Dictation subscore for the learning disabled students was 23 at entry into the Project, 24 at the end of Spring quarter; these raw scores correspond to an 11 and 12 year age equivalent score, respectively. The average scores of non-learning disabled students were 30 and 31, corresponding to adult achievement (age equivalent score of 23 and 37).

The average Proofing subscore for the learning disabled students was 14 at entry and 15 at the end of Spring quarter; corresponding to age 12 equivalent scores. The average raw scores of the non-learning disabled students were 20 and 21 respectively, again corresponding to adult achievement (age19 and 22).

The Punctuation and Capitalization pre and post average scores for the learning disabled group were 7 and 9, corresponding to age equivalent scores of 12 and 15. For the non-learning disabled students with raw score means of 10 and 11, their corresponding age equivalent scores were 17 and 22. The Spelling subtest average raw score for the learning disabled students was 22 for both pre and post tests; this corresponds with an age equivalent score of 11. The average raw scores of 28 and 29 for the non-learning disabled group are equivalent to age scores of 20 and 25 years respectively. The average raw score for the learning disabled students on the Usage subtest were 8 and 9, corresponding to 12 and 13 age equivalent scores; for the non-learning disabled, average raw score of 11 on both the pre and post tests corresponds to an age equivalent score of 23.

The Cluster scores provide support for the distinction between writing ability and achievement. The test score averages on the Written Language Aptitude cluster did not change over the intervention; the average score for the learning disabled group was 537, 548 for the non-learning disabled group (age equivalent scores of 16 and 23 respectively). The Written Language Achievement cluster summed the changes found in the subtests. The learning disabled student average achievement score increased over the intervention from 517 to 525 (age equivalent 12 to 13), while the non-learning disabled scores increased from 544 to 547 (age equivalent score 19 to 55).

The learning disabled students have depressed achievement scores in the areas of punctuation, capitialization, spelling and usage; their skill levels correspond to the skill levels expected of an adolescent in the age range of

11 to 15. The non-learning disabled students perform at the level expected of young adults; their age equivalent scores ranged from 17 to 37 years. Both groups increased their raw score performance slightly (approximately one point average increase) on each subtest during the intervention; this increase generally corresponded to a less than one to five year increase in the age equivalent score for both the learning disabled and non-learning disabled students. Thus, while the learning disabled students did show growth in their writing achievement skill during the intervention which was approximately equal or greater to that of the non-learning disabled students, they did not catch up to the achievement level of their non-learning disabled peers.

The Woodcock-Johnson subscales assess a number of the writing characteristics measured by the writing sample, and in detailing the significant age and skill differences provide support for the writing sample finding noted above that learning disabled students start the course with poorer writing skills. Similarly, the average score on the writing sample increased .5 for both the learning disabled and non-learning disabled students over the course of the Project, providing some support for equal growth. This change score was only statistically significant for the non-learning disabled students, however (Table 8, page II-16). The lack of significance should be interpreted in light of the small sample of learning disabled students and the greater variance in scores. Thus, while the writing sample does not provide as strong support for the growth in writing skill of learning disabled students, it suggests the same trend.

There was some concern that the scoring system for the writing sample was not sensitive to the small changes expected over the relatively brief Project intervention. Alternative scoring procedures are being considered for use in the second year, in an attempt to determine whether the small amount of variation in scores across groups was due to the equivalent writing achievement of the students, or a function of the scoring system.

Evaluation Hypothesis 3

The writing curriculum will allow learning disabled students to write in required courses at acceptable levels as measured by grade point average (2.0).

Again, the Project assumed that the learning disabled students would enter with poor writing skills relative to their non-disabled peers, that their grades in required courses would average less than a "C".

The majority of both the learning disabled students and the non-learning disabled students were performing at acceptable levels in required courses prior to their involvment in the Project. The average Fall quarter grade point averages (GPAs) of the learning disabled students was 2.4, compared to 2.7 for the non-learning disabled students. Their Spring quarter performance was similar, with average GPAs of 2.4 and 2.5 respectively. Within the Project writing curriculum, all students who completed the courses received a grade of "C" or higher. The average grade in GC 1421 was 3.0 for the learning disabled students, 3.2 for the non-learning disabled students; in GC 1422: 2.9 and 3.0 respectively. These results are presented in Table 9 (page II -17). Thus, while the learning disabled students performed slightly below their non-disabled peers, they performed at acceptable levels and generally at or above the "C" level in writing courses.

Evaluation Hypothesis 4

The writing curriculum will allow learning disabled students to complete writing courses at a rate comparable to that of their non-disabled peers and exceeding their prior mean credit completion ratio (CCR of .79).

As noted above, the evaluation objectives assumed an initial lower level of performance for the learning disabled student. This objective assumes that the learning disabled student would withdraw from a class after the first two weeks of class, fail a class, or take an incomplete in a course more frequently than their non-disabled peers, more often than 21% of the credits for which they were enrolled.

The majority of both the learning disabled students and the non-learning disabled students were completing and passing coursework at acceptable levels prior to their involvment in the Project. For the Fall Quarter before entry into the Project, the learning disabled students completed 91% of all credits in which they enrolled (CCR = .91); the non-learning disabled students completed 93% of their credits. Their cumulative CCRs at entry to the Project were .86 and .89 respectively. Their CCR performance for Spring Quarter was lower than for Fall, .77 and .72 respectively. The drop in CCR is not viewed as an effect of the Project intervention; this drop is consistent with the behavior of many of the GC students in spring quarter.

When completion of writing courses only was examined, the CCR patterns are similar. During Winter Quarter, the CCR for GC 1421 was .95 for the learning disabled students and .96 for the non-learning disabled students. For GC 1422, CCR for learning disabled students was .89; .95 for non-learning disabled students. Credit completion data is presented in Table 9 (page II - 17).

Given the overall high CCRs of Project participants, the intervention is not expected to show any measurable influence on the participants' completion of coursework. It may, however, influence the enrollment in courses requiring papers or a significant amount of writing. The first year students will be followed up over the next two years to determine their enrollment and performance in social sciences and humanities courses, which are assumed to require writing.

Evaluation Hypothesis 5

The career networking intervention will lead students to report increased motivation in academic pursuits.

Motivation was assessed through a survey of students participating in this component of the Project. The items were a five point Likert scale, ranging from strongly agree to strongly disagree. The results are presented in Table 5 (page I-12). Eleven learning disabled students responded to the survey.

The students generally agreed (55%) that participating in this component enhanced their motivation to do well in college, though 36% were uncertain and 9% disagreed. The students agreed that the tests, computerized career information systems, and interviews (if they used the resource) provided useful information on careers and added to their understanding of career planning. Sixty-four percent of the students agreed that they had a better idea of the courses they should take to match their career interests. Eighty-two percent agreed or strongly agreed that having specific career interests in mind would enable them to be more successful in their college courses.

Thus, to the extent that the career component provided information on careers and assisted the students in identifying their career interests, the intervention enhanced the motivation of the students to do well in college. However, the students were not highly motivated to be involved with the component and often their responses to the survey were based on minimal participation in this part of the Project.

Evaluation Hypothesis 6

The career networking intervention will lead students to report increased awareness of their strengths and limits vis-a-vis the workplace communication environment.

This objective was not evaluated. As noted above, approximately half of the learning disabled students agreed to participate in this component. While the students who agreed to participate generally completed the Strong-Campbell and initial interview, fewer students used the computerized career information systems and even fewer completed informational interviews and met with the Career Specialist throughout the term to discuss their career interests and their disability. Results based on this small number of self-selected participants who did complete the component would not be expected to be representative of the learning disabled students as a whole.

Evaluation Hypothesis 7

The overall project design will lead to measureable increases in participants self-esteem as measured by the Janis-Field Self-Esteem Scale.

Entering GC students were assessed on the Janis-Field; this scale is 20 Likert items, and has a score range of 1 to 5. The average score for entering students is 3.48. The learning disabled Project participants had an average score of 3.44 at entry to the Project; the non-learning disabled students had an average score of 3.55 (Table 10, page II-18). The Project assumed that the learning disabled students would have a lower self-esteem; the initial differences were not significant. At completion of the Project, the average self-esteem score for the students was 3.53 for the learning disabled students and 3.69 for the non-learning disabled students. This change was not statistically significant, but was in the expected direction.

An indicator of academic self-esteem is suggested by student opinions of their academic preparation. Their self-reported skill level was slightly higher in writing, reading, study skills, science, and career and college major planning.

In addition to self-esteem, the Project also measured the writing apprehension of the students, using the Daly-Miller Test of Writing Apprehension. It was assumed that academic self-esteem would be increased if writing apprehension could be decreased. The learning disabled students had significantly higher writing apprehension at the beginning of Winter quarter (average score of 78 for the learning disabled students, 63 for the non-learning disabled students). The learning disabled students experienced a significant drop in writing apprehension during the intervention. At the end of the Spring quarter, there were no significant differences in writing apprehension between the two groups (66 for the learning disabled, 60 for the non-learning disabled). These results are presented in Table 10 (page II-18).

III. Student Profile

The 94 students participating in the Project were compared with the 850 students entering the University of Minnesota General College (GC) in the Fall 1985 Quarter. This group was selected as a comparison group because the GC composition courses included as the Project curriculum are usually taken by GC students during their first year. Seventy-six percent of the students in the Project entered General College in Summer 1985, Fall 1985 or Winter 1986, including 57% of the learning disabled students and 81% of the non-learning disabled students (this group includes students with disabilities other than a learning disability). Table 11 (page III - 19) compares the GC entering freshmen class with the learning disabled students participating in the project and the non-learning disabled students participating in the project.

Equal Access

Equal access of eligible participants traditionally underrepresented was a goal of the project. To be eligible for the project, students must enroll in either 1421 or 1422, and a portion of these students must have a diagnosis of learning disability. Forty-four percent of the project participants were female, compared to 41% of the entering GC entering freshman class. Seventy-five percent of the GC freshman class is Caucasion, compared to 83% of the project participants. Black, American Indian, Asian, Chicano and other ethnic groups were represented in the project. The incidence of self-reported disability (learning, emotional, or physical) in the GC freshmen population is 5%. Twenty-two percent of the project participants were diagnosed learning disabled; an additional 3% indicated they had a physical or emotional disability.

The General College, an open enrollment college which offers courses to develop student skills and enable them to successfully transfer to other colleges within the University, offers a number of programs designed to meet the needs of its non-traditional and high risk students. In addition to involvement in the Project, nine of the learning disabled students were in a college retention program and six received tutoring and/or academic assistance related to their disability. One non-learning disabled student

received tutoring and/or academic assistance related to their disability, and 24 were involved in a college retention program. In the 1985 entering freshman class, approximately 275 students were enrolled in a retention program and 30 students received tutoring or academic assistance related to their disability.

Thus, project participants are similar in sex, ethnic background and their participation in special programs offered by the college. By Project design, persons with learning disabilities are over-represented.

Academic Background and Aspirations

Seventy-nine percent of the learning disabled participants had graduated from high school, compared with 65% of the non-learning disabled participants and 67% of the GC freshmen.

The high school performance of the learning disabled and non-learning disabled groups were similar, with GPA of 1.83 and 2.07, and percentile rank of 27 and 29 respectively. Likewise, their performance in General College fall quarter was also very similar. The learning disabled students averaged a GPA of 2.37 and completed 91% of the credits they registered for, while the statistics for the non-learning disabled students were 2.69 and 93% respectively. Additional academic information is presented in Table 9 (page II - 17).

Twenty-five percent of the GC freshmen had one to two years of college before entering GC, compared to 16% of the learning disabled and 23% of the non-learning disabled participants. In comparing number of years since last enrolled in school (either high school or college), 69% of the GC freshmen, 61% of the non-learning disabled and 53% of the learning disabled participants said less than one year. Fourteen percent of GC freshmen, 25% of the non-learning disabled and 26% of the learning disabled participants said they had been out of school for three or more years.

Father's education was similar across the groups; 62 to 65% of fathers had attended college. More Mothers of the learning disabled participants had less than a high school education, but about the same percentage (52 to 60%) had attended college.

When compared on their academic expectations, 47% of GC freshmen, 47% of the learning disabled and 37% of the non-learning disabled participants

said a bachelor's degree was their goal; 34% of the freshmen, 32% of the learning disabled and 39% of the non-learning disabled students indicated a masters degree was their goal; and 8% of the freshmen, 5% of the learning disabled and 13% of the non-learning disabled students aspired to a Ph.D. Seventy-four percent of the GC freshmen said they intended to transfer to another college within the University, while only 17% indicated they were unsure of their transfer plans. Fifty-three percent of the learning disabled and 86% of the non-learning disabled participants said they intended to transfer to another college within the University, while 35% and 10% indicated they were unsure of their plans, respectively.

Students who were undecided on their college major composed about 25% of the non-learning disabled and GC freshmen groups and 38% of the learning disabled group. The non-learning disabled and GC freshmen groups preference for major were similar; the learning disabled group showed a greater preference for the "Other" category, indicating a desire for a major other than business, math/science, social science, humanities, or education.

Learning disabled students differed from other project participants and freshmen in that they were slightly more likely to have actually graduated from high school, waited longer before attending college, and to enroll in GC as their first college experience. While they had similar degree aspirations, they were less certain how to attain the degree, unsure of their transfer and major plans. This uncertainty is characteristic of students at high risk of attrition and poor academic achievement.

Academic Preparation

Students were asked to rate their level of preparation in 12 academic areas, on a scale of Very Well (3), Fairly Well (2), or Not Well (1). The results of the self-ratings are in Table 12 (page III - 21). Most students felt they were fairly well skilled in all areas (means of 1.75 to 2.25). The non-learning disabled students and the GC freshmen ratings were very similar. The learning disabled group saw themselves as slightly better prepared in the areas of writing, reading, study skills, science, and career and college major planning.

The self-perception of better academic preparation by the learning disabled students is interesting in light of their lower scores (though generally greater variability) on the GC Placement tests. The average Writing placement test score for the learning disabled students was 18, at

the 19th percentile rank for General College (that is, the learning disabled students scored better than 19% of entering GC freshmen). The non-learning disabled students scored higher at 24, the 40th percentile rank for the College. The average score on the Reading test for the learning disabled students was 17, compared to 23 for the non-learning disabled students; these scores fall at the 26 and 45 percentile rank for the College respectively.

The learning disabled group scored on the average below the non-learning disabled group on the arithmetic and algebra tests as well, and both groups were below the 50th percentile rank for the College. See Table 13 (page III - 22) for a more complete list of placement test performance.

The learning disabled students overestimated their abilities and achievements when their perceptions were compared with the placement test performance. While scoring below the non-learning disabled group and below the 50th percentile on all tests, their ratings of achievement in writing and reading exceeded those of non-disabled students.

Self-Esteem and Counseling Needs

Students were asked to indicate their need for counseling services in nine areas. The results are listed in Table 14 (page III-23). Generally, the GC freshmen indicated a need and intention to use counseling in the areas of career or educational planning (70%), study skills (66%), and financial matters (41%), with little need in other areas.

The non-learning disabled participants counseling needs were similar to the GC freshmen, though a little deflated in the areas of career and study skills counseling need. The learning disabled students indicated similar need and intent to use counseling in these three areas (58%, 68% and 53% respectively), but they were also more likely to see themselves as in need of family counseling (16%), counseling on how to make friends (26%), couple counseling (16%), chemical dependency counseling (16%), and other counseling (16%).

All students completed the Janis - Field Attitude Inventory as a measure of self-esteem. The average score for GC freshmen was 3.48, with a standard deviation of .53. For the learning disabled and non-learning disabled groups, the means were 3.46 and 3.52, with standard deviations of .67 and .49 respectively. The test score range is 0 to 5, with higher

numbers indicating greater self-esteem (Table 10, page II-18).

While intent to use counseling services provides some support for the research literature indicating that some learning disabilities include difficulties in social perception and processing of social information, their self-esteem was not significantly lower.

Employment and Financial Aid

Learning disabled students generally intended to be employed during the school year less often than did other students. Forty-seven percent indicated they did not intend to work while they attended college, compared to 10% of the non-learning disabled students and 15% of the GC freshmen. Sixteen percent of the learning disabled students indicated they planned to work 20 or more hours per week while they attended college, compared to 27% and 23% for the non-learning disabled participants and GC freshmen respectively.

The learning disabled student expectations for financial aid were not very different from other students however. Thirty-seven percent indicated they were receiving financial aid, compared to 30% of the GC freshmen and 41% of the non-learning disabled students in the project (Table 11, page III-19).

Microcomputers and Composition

The students participating in the Project were also questioned initially concerning their familiarity with microcomputers and their ability to write. Some interesting differences were found (Table 15, page III- 24).

While just over a third of each group indicated they had never used a word processor, 27% of the non-learning disabled students felt they had had extensive experience with the microcomputer compared to 5% of learning disabled students. Generally, students with microcomputer experience had used the Apple IIe. Most students had some typing experience; when asked to rate their typing ability, self-ratings were 2.5 for learning disabled and 3.2 for non-learning disabled on a five point scale from terrible to excellent. Students indicated a similar improvement in their writing when they used a typewriter. Interestingly, they indicated a higher level of ability to use a word processor (3.2 and 3.7 respectively).

When asked to rate the difficulty they had with writing, both groups tended to indicate they found writing neither easy or difficult. However, when asked specifically if a certain aspect of writing was a problem, 86% of the learing disabled students indicated punctuation and spelling were problems, 57% said composing was a problem and 48% indicated they had difficulty with grammar. These responses indicate the learning disabled students actually were more likely to have experienced difficulty writing than the non-disabled students (responses of 41%, 36%, 38% and 30% respectively).

The differences in writing difficulty continued to appear in the scores of the Daly Test of Writing Apprehension. On the pretest, the average score for the learning disabled student group was 78 compared to a mean of 63 for the non-learning disabled group. The learning disabled students were significantly more apprehensive about writing (Table 10, page II-18).

Students were asked to rate their writing abilities on a five point scale from terrible (1) to excellent (5). Differences were apparent in student perception of their ability to communicate through written letters (average of 3.1 for learning disabled and 3.9 for non-learning disabled) and written reports (3.0 and 3.6), and their ability to organize facts and ideas to support a viewpoint (3.0 and 3.4). There were also differences in student perception of their ability to succeed in a composition class (3.3 and 3.7).

There were no real differences in their ability to form ideas, with 33% of the learning disabled students and 30% of the non-learning disabled students indicating this was a problem. Both groups indicated a "passable" ability to keep others' interest when they were telling a story.

These results indicate that the learning disabled students were much more likely to have experienced difficulties in writing, and were much more apprehensive about their writing. About one third of each group had no experience with microcomputers. The learning disabled students who had used micromputers generally indicated they had had little or some experience on the microcomputer, while 27% of the non-learning disabled students indicated they had extensive experience on the micro.

IV. Conclusions and Recommendations

Conclusions

The Project intervention and performance objectives as described in the grant were implemented in a timely and effective manner.

The initial training provided structured experience on the microcomputer, ensuring students had the word processing skills to begin the composition course and reducing computer anxiety. The two hour time commitment was adequate without becoming a burdensome requirement on the students.

The composition curriculum was effective from the perspective of student satisfaction with the courses and from the satisfactory performance of all students in the courses. The class ratio of 2:1 non-learning disabled to learning disabled students and lack of additional support or resources for the learning disabled students document that mainstreamed education is an effective strategy. The open computer lab was heavily used by students, particularly in the winter quarter, supporting the need for this resource when using microcomputers in instruction.

The career component worked for the students sufficiently motivated to pursue the option outside the structure of the classroom, but most students did not complete the component. The need for greater structure was built into plans for the second year of the Project.

Project staff have extensively presented and published information on the training, curriculum and findings over the past year. The curriculum was designed and offered Winter and Spring quarters. Twenty-one learning disabled students participated in the Project, including eleven who participated in the career component.

The Evaluation Objectives

This Demonstration Project assumed that the learning disabled students were writing and achieving at an academic level below their non-learning disabled peer group, and that this lower achievement would be demonstrated through the usual mechanisms of grade point average, credits completed and performance on an essay.

Some of the Project measures indicated support for the assumption of differences in writing and academic achievement. Seventy-one percent of the learning disabled students who had held jobs which required writing indicated that their writing ability had caused problems in their job. The mean score on the Writing Placement test taken at entrance to GC placed the learning disabled student group at the 19th percentile rank of the college norms; their mean score on the Reading Placement test was at the 26th percentile rank. Over half of the learning disabled students self-reported that punctuation, spelling, and composing were problematic. The Woodcock-Johnson Psycho-Educational Battery written language achievement subtests indicated that the learning disabled students were on average achieving at the level of a young adolescent, not a young adult. And learning disabled students scored significantly lower on the writing sample.

However, the learning disabled students did not demonstrate the achievement differences in the usual academic measures. There were no significant differences between the learning disabled and the non-learning disabled students in grade point average and credit completion ratio. The learning disabled group performed almost as well as the non-learning disabled students in the composition courses, and all students attained a grade of C or higher. On the traditional measures of achievement, the distribution of scores for the learning disabled student was almost the same as the distribution for the non-learning disabled student, just shifted a little lower. Thus, the achievement differences between the learning disabled and non-learning disabled students were only found through timed or standardized test situations and self-report -- not through measures traditionally used to assess ongoing achievement in college.

One possible explanation is that the learning disabled students may be able to mask or compensate for their lower levels of achievement on day to day measures of achievement, which are not available to the student during a placement test and which would not actually reduce the number of problems they experienced. Forty-seven percent of the learning disabled

students were not employed while they were in the Project, contrasted with 10% of the non-learning disabled students. The learning disabled students spent an average of 24 hours in the open lab during winter quarter, compared to 17 hours for the non-learning disabled. Nine of the 21 learning disabled students were in a college retention program which provided supportive services; six were receiving academic assistance and tutoring as a result of their disability. Thus, it appears that the learning disabled students had more time to devote to their studies, and utilized more support services to enhance their achievement. These factors could have contributed to the similarity between groups on measures when the student could plan ahead or when time was not a factor in performance.

Another facet of this achievement-performance relationship may be psychological. A feeling of apprehension or uncertainty how to proceed was the second area of difference between the learning disabled and non-learning disabled students. The average initial writing apprehension of learning disabled students was significantly higher than the non-learning disabled students. The learning disabled students were more likely to state they intended to use personal relationship counseling, perhaps indicative of greater uncertainty or problems in their social life. In their academic life, learning disabled students were less likely to have selected a major, and to have plans for achieving the degree to which they aspired.

The findings of the Project suggest that the learning disabled student who attends college is likely to perform almost as well as the non-learning disabled student, and that significant real differences in achievement and skills will be compensated for, possibly by additional time or the application of strategies to enhance their performance. New measures which would tease out the differences between performance and achievement may provide a better measure of the effectiveness of the intervention. If time or compensating strategies are reasons for the equivalent performance in spite of significant differences in achievement, how does the curriculum and use of the microcomputer aid the student?

Findings also indicate that apprehension and uncertainty are characteristics which demonstrate the differences between the learning disabled and non-learning disabled students, and that these feelings were affected during the intervention. Greater attention to how the intervention influenced these characteristics would provide a greater insight into what components of the Project were effective.

Recommendations

Training

Determine the feasibility of offering additional training in word processing software commonly found in the dormatories and micro laboratories on campus. Continue to provide training on a second microcomputer when a student requests such training during the program, and encourage students to try a second microcomputer. These procedures would increase the chances of transfer and continued use of word processing skills.

Composition Curriculum

Develop measures to assess the relative influence and possible interaction of the microcomputer and the decentralized classroom in student satisfaction, writing skill achievement, and reduction of writing apprehension. The microcomputers provided the glamour of high technology and the benefit of free training in a desirable skill; the decentralized teaching style incorporated considerable peer interaction and self criticism. Either process or a combination may have contributed to the success of the intervention. The research question is which variable is causing the intervention results: would the curriculum be effective under a more traditional teaching style?

Career Component

In designing this component, cost and a process to attract and maintain student involvement should be considered to ensure replicability and participation by students. Immediate practical application of content may attract students. Learning disabled students were more uncertain of their major; their responses indicated they found the component most helpful when it suggested ways to enhance or structure their college education. This focused approach to career exploration and planning may enhance student interest and participation in the program.

Evaluation Objectives

Continue to collect data on the traditional measures of achievement, but attempt to identify compensatory strategies used by the learning disabled students during the writing course which enhance their performance but not their actual achievement. Continue to assess apprehension and uncertainty differences and develop measures to assess how the Project affects these characteristics.

APPENDIX A
MICROCOMPUTER WORD PROCESSOR TRAINING GUIDELINES

1. Verbal introduction to the machine and accessories
   Power Switches (Computer and Printer) Monitor, Keyboard
   Mouse or Cursor Keys

2. Tutorials/Training
   A. BankStreet Tutorial (for IBM and Apple IIe)
   Tutorial lessons covering Cursor key movement, Erasing and Unerasing Text, Move and Moveback Text, Find and Replace.

   Training in the placement of Program Disks into drives (Program Disk in Drive A, Data Disk in Drive B; explanation of why a data disk is needed for the BankStreet program.

   Training review of Menu features on the actual Bankstreet Program, with special emphasis on Retrieving Files, Editing, Saving, Printing and Quitting BankStreet.

   Practice Using BankStreet with a Practice File, with special emphasis on Move and Moveback options, cursor movement, correcting spelling and deleting text.

   Training is complete when student has demonstrated ability to load BankStreet, retrieve files, save and quit the program disk.

   B. MacWrite-Price Tutorial (for Macintosh)
   How to Open Existing Files, Get Started.

   Practice using Macwrite to revise Text, using Cut and Paste, Tabs, Styling, Cursor movement using Mouse, Spacing and Margin Setting, and Scrolling.

   Learn Basic Commands of Save, Print, Quit, Close, Open New File and Eject.

   Training is complete when the student has demonstrated the ability to create new files, retrieve existing files, save text, quit and eject disk.

TABLE 1
MICROCOMPUTER TRAINING FOR STUDENTS ENTERING GC 1421 WINTER 1986

1. Overall, how helpful was the training?

54.5%	Very Helpful	27.3%	Generally Helpful
18.2%	Somewhat Helpful	0.0%	Not at all Helpful

2. At the end of that training session, how comfortable did you feel working on the microcomputer?

38.9%	Very Comfortable	18.5%	Somewhat Comfortable
40.7%	Generally Comfortable	1.9%	Not at all Comfortable

3. How clear was the instructor in presenting or explaining material?

61.8%	Very Clear	1.8%	Somewhat Clear
36.4%	Generally Clear	0.0%	Not at all Clear

4. Did you feel the training sufficiently prepared you to take the GC 1421 course using microcomputers? 94.3% Yes

5. Did you use the skills in GC 1421 that you learned in the training session? 92.5% Yes

SUGGESTIONS FOR IMPROVING THE TRAINING:

Keep up the good work.

The training session sufficed.

I already knew how to use the computer. I felt the training was a waste of my time.

More variety of computers. More computers!!

Although I thought I had plenty of time in the one hour training, I think that maybe prior to the class people should have time using the computer.

Although (Lab Asst) was an excellent "trainer", I learned more when I got started in the course. I've always had math and computer PHOBIA. Learning on your own once you get started is the best way to learn. I think that the training sessions are very helpful but I learned more during the course about micro computers. (Lab Asst) was understanding, efficient but most importantly Patient. He helped ease my anxiety alot.

Teaching assistants should know more about writing also, that would be very helpful!

One students did not receive training.

Already proficient on the word processor

I was somewhat anxious b/4 starting class, afraid I wouldn't remember the training. But no suggestions

Its just a matter of learning and remembering it.

(Lab Assts) did a very good job. I had computer training prior to the training session.

Perfect ("Generally Good")

To have more writing assignments and to have a bigger variety of subjects to write on.

Give people more practice time especially LD students.

Plead the fifth.

Based on the responses of 57 students enrolled in the 3 GC1421 Microcomputer courses Winter 86. Thirty percent of these students identified themselves as LD.

TABLE 2
MICROCOMPUTER TRAINING FOR STUDENTS ENTERING GC 1422 SPRING 1986

1. Overall, how helpful was the training?

77.8%	Very Helpful	5.5%	Somewhat Helpful
16.7%	Generally Helpful	0.0%	Not at all Helpful

2. At the end of that training session, how comfortable did you feel working on the microcomputer?

44.4%	Very Comfortable	11.1%	Somewhat Comfortable
44.4%	Generally Comfortable	0.0%	Not at all Comfortable

3. How clear was the instructor in presenting or explaining material?

72.2%	Very Clear	0.0%	Somewhat Clear
27.8%	Generally Clear	0.0%	Not at all Clear

4. Did you feel the training sufficiently prepared you to take the GC 1422 course using microcomputers? 94.4% Yes

5. Did you use the skills in GC 1422 that you learned in the training session? 100.0% Yes

SUGGESTIONS FOR IMPROVING NEXT YEAR'S TRAINING

Yes: longer training session, so we know ALL the capabilities of the computer.

For me the training session was a refresher coue because I already knew how to use bankstreet - I do not know what it would be like if I had never used a word processor before.

possibly more open lab time --maybe teach "Wordstar" program in addition because that is what is in the dorm P.C.'s.

maybe a small manual printed for review of keyboard and it's operations for students to take home / bring to class, etc.

Have more training. Let students read instructions & try to use computer w/o instruction also. I needed more time to practice independently.

No

Nope

Keep it the same great good

None

I believe there should be no training session - just get in there when class starts - write a practice paper - and learn only the important things - like "saving" a theme in some kind of training session

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Based on the responses of 18 students enrolled in the 3 GC 1422 Microcomputer courses Spring 86 who were not enrolled in Microcomputer GC 1421 course in Winter. None of these students identified themselves as LD.

TABLE 3
STUDENT OPINION SURVEY OF GC 1421 AND GC 1422 COMPOSITION COURSES

The numbers in the left column for each response option are the aggregate opinions of fifty-seven students from 3 sections for Winter 86 GC 1421. The numbers in the right column are the aggregate opinions of sixty-five students from 3 sections for Spring 86 GC 1422. These are the microcomputer College Writers' Project courses. Items 1-16 are the students' general opinions of the instructor and course. Items 17-24 are the students' mastery of course objectives. Items 25-27 are computer and disability items. Student comments are included.

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1. Instructor's clarity in presenting or discussing course material.

0.0%	0.0%	Unsatisfactory			
1.8%	1.5%	Marginal	64.9%	55.4%	Very Good
10.5%	13.8%	Fairly Good	22.8%	29.2%	Excellent

2. Instructor's rapport with you as a student.

1.8%	0.0%	Unsatisfactory			
3.6%	0.0%	Marginal	50.0%	52.3%	Very Good
19.6%	18.5%	Fairly Good	25.0%	29.2%	Excellent

3. Instructor's success in getting you interested or involved.

1.8%	0.0%	Unsatisfactory			
3.5%	1.5%	Marginal	43.9%	40.0%	Very Good
24.6%	26.2%	Fairly Good	26.3%	32.3%	Excellent

4. Instructor's success in getting you to think.

0.0%	0.0%	Unsatisfactory			
3.5%	0.0%	Marginal	43.9%	56.9%	Very Good
24.6%	15.4%	Fairly Good	26.3%	27.7%	Excellent

5. Instructor's attention to what helps you learn best.

1.8%	0.0%	Unsatisfactory			
3.5%	4.7%	Marginal	33.3%	54.7%	Very Good
29.8%	21.9%	Fairly Good	33.3%	18.8%	Excellent

6. Helpfulness of feedback given you about your performance.

0.0%	0.0%	Unsatisfactory			
8.8%	0.0%	Marginal	38.6%	49.2%	Very Good
19.3%	18.5%	Fairly Good	19.3%	32.3%	Excellent

7. Degree to which exams and papers measured your knowledge and understanding.

0.0%	0.0%	Unsatisfactory			
7.4%	1.5%	Marginal	44.4%	55.4%	Very Good
37.0%	33.8%	Fairly Good	11.1%	9.2%	Excellent

8. Relation of exams and papers to important points in the subject matter.

0.0%	0.0%	Unsatisfactory			
7.5%	1.6%	Marginal	41.5%	60.3%	Very Good
34.0%	22.2%	Fairly Good	17.0%	15.9%	Excellent

9. Overall quality of text(s) and handouts.

3.6%	0.0%	Unsatisfactory			
9.1%	3.2%	Marginal	38.2%	58.7%	Very Good
41.8%	23.8%	Fairly Good	7.3%	14.3%	Excellent

10. Interest level of text(s) and handouts.

0.0%	0.0%	Unsatisfactory			
17.9%	9.5%	Marginal	35.7%	38.1%	Very Good
42.9%	39.7%	Fairly Good	3.6%	12.7%	Excellent

11. How much have you learned in this course?

19.6%	0.0%	Little			
42.9%	1.5%	Some	8.9%	52.3%	Very Much
28.6%	26.2%	Much	0.0%	20.0%	An Exceptional Amount

12. All things considered, how would you rate this instructor's teaching in this course?

0.0%	0.0%	Poor	28.1%	33.8%	Very Good
7.0%	0.0%	Fair	33.3%	29.2%	Excellent
14.0%	3.1%	Good	17.5%	33.8%	Exceptionally Good

13. All things considered, how would you rate this course?

0.0%	1.5%	Poor	28.1%	30.8%	Very Good
3.5%	0.0%	Fair	33.3%	38.5%	Excellent
14.0%	10.8%	Good	17.5%	18.5%	Exceptionally Good

14. How would you rate your own ability, prior to this course, to deal with the subject matter of this course?

1.8%	4.6%	Unsatisfactory			
22.8%	27.7%	Marginal	21.1%	16.9%	Very Good
52.6%	44.6%	Fairly Good	1.8%	6.2%	Excellent

15. How would you rate your own motivation to do as well as you could in this course?

0.0%	0.0%	Unsatisfactory			
10.7%	3.1%	Marginal	42.9%	52.3%	Very Good
32.1%	35.4%	Fairly Good	14.3%	9.2%	Excellent

16. What have your grades been in recent college courses?

16.1%	16.9%	Almost all A's			
46.4%	24.6%	Mostly A's & B's	7.1%	38.5%	Mostly B's & C's
16.1%	15.4%	Mostly B's	14.3%	4.6%	Mostly C's or lower

17. Rate your ability to plan and organize an informative, analytical essay.

0.0%	0.0%	Terrible			
1.7%	3.1%	Poor	70.7%	70.8%	Good
17.2%	18.5%	Passable	10.3%	7.7%	Excellent

18. Rate your ability to use standard written English in essay writing.

0.0%	Terrible			
1.5%	Poor	67.7%		Good
12.3%	Passable	18.5%		Excellent

18. Rate your ability to recognize spelling errors in an essay.

0.0%	Terrible		
14.3%	Poor	53.6%	Good
14.3%	Passable	17.9%	Excellent

19. Rate your knowledge of drafting and editing strategies to improve writing.

0.0%	Terrible		
0.0%	Poor	53.8%	Good
33.8%	Passable	12.3%	Excellent

19. Rate your ability to recognize grammatical errors in an essay.

0.0%	Terrible		
10.5%	Poor	54.4%	Good
26.3%	Passable	8.8%	Excellent

20. Rate your ability to revise and edit an essay <u>without</u> a word processor.

0.0%	1.5%	Terrible			
12.5%	20.0%	Poor	32.1%	30.8%	Good
46.4%	43.1%	Passable	8.9%	4.6%	Excellent

21. Rate your ability to revise and edit an essay <u>using</u> a word processor.

0.0%	0.0%	Terrible			
0.0%	0.0%	Poor	46.6%	50.0%	Good
13.8%	14.1%	Passable	39.7%	35.9%	Excellent

22. Rate your ability to give other students feedback about their writing.

0.0%	0.0%	Terrible			
1.8%	1.5%	Poor	61.8%	63.1%	Good
23.6%	24.6%	Passable	12.7%	10.8%	Excellent

23. Rate your awareness of how the intended audience influences how an essay is written.

0.0%	0.0%	Terrible			
1.7%	0.0%	Poor	74.1%	61.5%	Good
15.5%	26.2%	Passable	8.6%	12.3%	Excellent

24. Rate your ability to talk in class about your writing.

0.0%	0.0%	Terrible			
12.1%	7.7%	Poor	48.3%	49.2%	Good
27.6%	29.2%	Passable	12.1%	13.8%	Excellent

25. Rate the helpfulness of the Lab Teaching Assistants.

0.0%	0.0%	Terrible			
1.8%	0.0%	Poor	26.3%	43.1%	Good
3.5%	1.5%	Passable	68.4%	55.4%	Excellent

26. Was the microcomputer lab open enough hours for you to complete your written assignments for this course?

96.5% 98.5% Yes

Comments on Sufficient Lab Hours: 1421

Never encountered any problems, plenty of time
I like some nights to
Kevin was very helpful
Nobody was in the labs half the time
Yes, I used the computer in my dorm though.
but weekends would have been helpful
I always had more then enough time
More More More
conflict with schelade for class, work
Although there should be better hours on Wed, Mon, Fri
Time was always available.
I feel that the hours were plenty.
Would have liked to have Lab HRs. on Mondays, Wed, & Fridays as well.

Comments on Sufficient Lab Hours: 1422

the hours were great
I always had a open chance to use computers.
Good accessibility.
I was able to come in when it was convenient for me.
Lab assistants very cooperative in this matter.
Although I used my parents computer, it was nice to have the option at school
But I have to work to stay in school so I can't make it all the time.
but still could be open more hours
but availability on weekends would have made it excellent.
No: open until 9 three days a week.
I wish there could have been more hours on Weds. & Fri.

27. Was the microcomputer lab open at times that were convenient for you to use the lab?

92.7% 92.2% Yes

Comments on Convenience of Lab Hours: 1421

Evening hours were also nice.
Only on some days
Not always.
Mostly for most part Am glad they have evening lab hrs.
Needed more day/morning & afternoon hours
5 - 8 pm is great
More evening hours would be nice.
Would have liked to have Lab HRs. on Mondays, Wed, & Fridays as well.

Most of the time although next quarter I start working.
conflict with schelade for class,work
More More More
It would be nice if the class were not taught in the labs so the lab would be open during class.

Comments on Convenience of Lab Hours: 1422
Open lab hours were very convaienient and helpful
6:00 to 8:00 pn Mon & Wed was exceptionally helpful
Unfortunately, it would have been difficult with my schedule this quarter, but it would not been impossible to make time.
there were enough convenient hours but I had to juggle my schedule to make it fit.
More night hours would have been nice.
Too bad it wasn't open more evening.
I wish there could been more hours on Weds & Fri.
Although it would be great if there were more hours feasible on MWF.
class time (other classes) took up much good time & space.
Set Sun

28. Do you have a learning disability?
29.8% 21.5% Yes

GENERAL COMMENTS ON THE COURSE: (verbatim, organized by class and by topic)
1421:
I would have to say that the course is very well organized and to keep doing what your doing, because it is a very good course . . .
Good class very helpful
Everything was great. Was an enjoyable learning experience I hope more classes are offord like this.
I thought it was a good class.
It was a wonderful class! no suggestions.
I feel this course was set up to the best of it's advantages. I would normally have dreaded taking 1421, but I loved it and I couldn't improve it in any way.
I thought the class was run rather well.
Overall an exceptionally well class, with a great advantage teaching both writing skills and word processing.
Using a computer to write my essays was a great help, I was more comfortable and I could see and understand what I was writing better.
I think my overall writing quality was improved as a result of the microcomputer.
More emphasis on the word processors ability to diversify writing techniques.
Ocational "skill-sessions" to aquaint students with more of the capacitys of the computer.
Maybe have the writing geared more to the computers. Doing drafts on the computers prewriting and anything elese.
No, but I just wanted to say that (Prof) is a good teacher & that he was always willing to help -- Thanks!! He also was very understanding & I appreciate that.
Teaching assistants should know more about writing also, that would be very helpful! (T)
A way that I feel would improve my writing tremendously is a feedback system. There wasn't enough feedback for me provided during the class hours. Feedback should be a structured method with instructions on giving good feedback to people about their writing.

Specific writing problems need to be identified individually, & I feel the computer could be an aide in identification & also in changing the problem -> especially in comparing first drafts will revisions.

Quality of textbooks/handouts: sexist nature of some made them unsatisfactory.

Get rid of texts books and find some that are easier.

I still word like to inprove my writing skilles

Some assignments are vauge. I wish I had a more clear picture of what to write. I spend a lot of time trying to figure it out.

More detailed instructions on papers.

To have more writing assignments and to have a bigger variety of subjects to write on. (T)

I think something about Monday's should be done. There is to many people to work on the computer. Maybe we should have just lectures on Monday and Friday & Wednesday work day.

More comfortable chairs would be nice.

Overall, I think that 2 days of open lab (Tues & Thurs) were not very convenient. It would have been nice to have more on Mon, Wed, and Friday.

Could use more computers, because sometimes there are more students than computers.

More open lab hours.

Nighttime and weekend lab times.

Don't give students those tests my brain almost went on strike! Otherwise, keep up the good work!

1422

I like this class.

wouldn't mind taking the course again -- good teacher, good T.A.,

I fully enjoyed this course. Thanks for letting me participate.

Good course, extremely helpful !! Instructor very Helpful and good motivator!

I thoroughly enjoyed this class, even though I had a very hectic schedule.

I think this course is excellent.

I thought this was a good class and would like to see more like it.

I thought was an outstanding course.

I feel that the instructor was very interested in teaching and helping students to improve their writing skills. He was very aggressive which helped me to write better and feel much better about my writing. He gave us ample time to gather information and to type our papers. I would strongly recommend the course and instructor.

I found this course to be somewhat harder than 1421. Having the instructor for two previous quarters, I'm use to the way she teaches and I like it alot. I hope she continues it in the future.

This course has help me to write more than narrative, I learned to compromise and analaze. And the group worked helped break up the boringness of writing all the time.

I learned so much in this course. The instructor is a excellent teacher and she has mad me more confident about my writing Great Teacher.

This class has been really helpful in many ways. I learned alot about writting, using a computor for it, and in general the experieance of just using computor in general. The (Prof) was a good instructor and (Lab Assistants) were just as good at helping out with questions when the instructor wasn't around. I would recomend this course to anyone, with <u>any</u> career goal.

The course was very beneficial when it came to expressing one's own opinions and it was a big challenge for me - but I would of rather been given more time in class for writing and less time in class for lecture.

I think we talk too much about assignments and getting into groups or in circles because it

gives people a easy slip to goof off and not do their own individual work that really should be their whole grade.

I enjoyed this class, mainly for the class discussions. I felt everyone was involved and genuinely interested in what we were talking about. I felt (Prof) did a good job in provoking discussion and interest in what our topic was for the quarter.

The instructor was a big plus, she is motivated in such a constructive way, that it makes the individual student become motivated as well. Writing papers was fun.

I think the strategy of peer feedback is important to writing. I could have used more in depth lectures on writing strategies, historical evolution of writing, and perhaps more examples from writers to illustrate strategies and evolution.

I find the series of papers we are doing this quarter is a good way to develope writing skills and learn about a familiar subject. I find this quarter much more interesting and helpful than last.

I think the instructor was one of the nicest teachers I've had so far in my college school. He really wants to make you learn and understand what we are trying to accomplish. The only thing I didn't like is the long lectures. I hate lectures. The only time they're not bad is when you have to take notes to pass a test. Other than that (any teacher or class) I can't stand it. Any teacher or class doesn't change my view. A teacher that's wonderful and nice (the instructor) couldn't change it.

(Prof)'s suggestions and comments were very helpful when undertaking and while rewriting papers. He has good insight to people's writing, which I feel is fairly rare.

Would have liked to create our own stories in our own ideas instead of relating it to music or a Rock related subject.

I found the topics to be interested that we had to write about.

I did not like the subject that we wrote about (music) this quarter. I could never read the copies the instructor gave us because the copy was done very bad.

The use of the computer made it easier and worthwhile. I think that the use of microcomputers for 1421 & 1422 was an all time plus, it aided students to learn a little bit more about themselves and the general use of a computer.

Using the computers makes me write more fluently.

I really enjoyed learning about and using computers - so much that I plan to purchase one myself. Using the computers really helps me to write much better. I have alot of trouble writing (manually), and editing and re-writes are a real chore. With the computer all these problems are elemnieted, and I can concentrate fully on my content and quality.

It (1422) has helped me to do a better job of writing and it has made me even more sure about my choice of major. My major is journalism. Now I feel very confident with my writing, and the lab assistant and the instructor were excellent help. I really learned alot in this cource.

I think we sould place more in helping people get over a learning disabilitys and less time and money for sports and (IT) and life people up in this country and spend less on war.

TABLE 4
STUDENT JOB BACKGROUND AND CAREER PLANS

	LD (N=17)	Non-LD (N=39)
Held a job that required the use of writing?	41.2%	41.0%
Had problems in a job because of your writing ability?	29.4%	0.0%
Think your experiences with a computer will help you get a job some day?	82.4%	94.9%
Which statement best describes your career decision:		
-I have firm ideas about the career I'd like to go into: 29.4%	38.5%	
-I have thought about different careers, but have not made up my mind which career to choose:	58.8%	53.8%
-I have no idea which career I would like to go into:	11.8%	7.7%
Has this course effected your attitudes toward or ideas about possible career choices?	57.1%	60.8%
Has your computer experience in this course helped you to develop skills you will need for employment?	85.7%	84.0%
Do you expect to use a computer in the future for writing in a job?	100.0%	89.4%

The first four items are from the initial interview, conducted prior to the start of Winter quarter; the final three items were administered at the end of Spring quarter.

TABLE 5
LEARNING DISABLED STUDENTS' OPINIONS OF CAREER EXPLORATION SERVICES

Participated in the Career Exploration Services[1]:

64.7% Yes

IF NO, Why did you not participate in the Career Exploration Services[2]:

0.0% I didn't have time to do the extra work.
16.7% I wasn't interested in the career exploration that was offered.
16.7% I didn't understand what the career course was about.
0.0% I couldn't coordinate my schedule with the career specialist.
66.7% Other reason.

IF PARTICIPATED IN CAREER EXPLORATION SERVICES:

Used computerized systems for career exploration:[3]

36.4%	SIGI+	9.1%	Both SIGI+ and Discover
27.3%	Discover	27.3%	Neither

Number of completed informational interviews:[3]

63.6%	None	9.1%	Two
18.2%	One	9.1%	Three or More

The SCII increased my knowledge about careers that fit my interests.[3]

0.0%	Strongly Agree		
54.5%	Agree	9.1%	Disagree
36.4%	Uncertain	0.0%	Strongly Disagree

The Pathfinder program helped me to understand my Strong-Campbell results.[3]

0.0%	Strongly Agree		
81.8%	Agree	9.1%	Disagree
9.1%	Uncertain	0.0%	Strongly Disagree

The computerized systems (SIGI+, Discover) gave me useful information on different careers.[3]

36.4%	Strongly Agree	0.0%	Disagree
27.3%	Agree	0.0%	Strongly Disagree
9.1%	Uncertain	27.3%	Did not use either system

Informational interviews with employers helped me to understand more about a specific career.[3]

9.1%	Strongly Agree	0.0%	Disagree
18.2%	Agree	0.0%	Strongly Disagree
9.1%	Uncertain	63.6%	Did not interview employers

1: percentage based on the 17 LD students who completed the sequence
2: percentages based on the six students who did not participate but completed the sequence
3: percentage based on 11 subject who participated in the program and completed the survey

I have a better idea which college courses to take based upon my career interests.[3]

0.0%	Strongly Agree		
63.6%	Agree	0.0%	Disagree
27.3%	Uncertain	0.0%	Strongly Disagree

Having specific career interests in mind will help me to be more successful in college courses.[3]

9.1%	Strongly Agree		
72.7%	Agree	0.0%	Disagree
18.2%	Uncertain	0.0%	Strongly Disagree

The career exploration course has increased my motivation to do well in college.[3]

0.0%	Strongly Agree		
54.5%	Agree	9.1%	Disagree
36.4%	Uncertain	0.0%	Strongly Disagree

1: percentage based on the 17 LD students who completed the sequence
2: percentages based on the six students who did not participate but completed the sequence
3: percentage based on 11 subject who participated in the program and completed the survey

TABLE 6
STUDENT PERFORMANCE ON THE WRITING SAMPLE

Time Administered		Learning Disabled Students	Non-Learning Disabled Students	p
		(n = 16)	(n = 39)	
January	Mean	3.00	4.08	.002
	SD	1.13	.86	
		(n = 17)	(n = 39)	
March/April	Mean	3.79	4.54	.000
	SD	.56	.72	
		(n = 15)	(n = 37)	
June	Mean	3.50	4.47	.010
	SD	1.20	.77	

Scale range is 1 to 6, with higher numbers indicating greater writing skill.

TABLE 7
STUDENT PERFORMANCE ON THE
WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY

SubTest		Learning disabled Students (N = 16)		Non-learning disabled Students (N = 31)	
Dictation	Pre: M/SD	23.13	4.40	29.90	2.77
	Post: M/SD	24.44	3.95	30.52	2.68
Proofing	Pre: M/SD	13.50	4.59	20.00	2.37
	Post: M/SD	15.19	4.67	20.90	2.79
Punctuation	Pre: M/SD	7.31	2.68	10.45	1.98
	Post: M/SD	8.63	2.75	11.42	1.73
Spelling	Pre: M/SD	21.50	4.56	27.55	4.18
	Post: M/SD	22.31	4.09	28.84	3.00
Usage	Pre: M/SD	7.94	2.38	10.84	1.37
	Post: M/SD	8.69	2.21	11.16	1.24
Written Language Aptitude	Pre: M/SD	537.38	18.86	547.77	8.88
	Post: M/SD	536.75	18.97	548.71	9.14
Written Language Achievement	Pre: M/SD	517.25	16.66	543.68	8.60
	Post: M/SD	525.06	17.99	546.87	9.88

M/SD: raw score mean and standard deviation
EAS: equivalent age score

TABLE 8
CHANGE SCORES IN STUDENT PERFORMANCE ON THE WRITING SAMPLE

Group		Time 1	Time 2	p
		January	March	
	Mean	3.00	3.81	.004
	SD	1.25	.57	(n = 16)
Learning Disabled				
		January	June	
	Mean	3.07	3.50	.171
	SD	1.17	1.29	(n = 14)
		January	March	
	Mean	4.08	4.54	.002
	SD	.86	.72	(n = 39)
Non-Learning Disabled				
		January	June	
	Mean	4.10	4.49	.009
	SD	.87	.79	(n = 37)

TABLE 9
HIGH SCHOOL AND COLLEGE ACADEMIC PERFORMANCE

			Learning disabled	Non-learning disabled
HIGH SCHOOL	Percentile Rank	Mean	27.00	29.40
		SD	23.30	15.86
		N	15	55
	GPA	Mean	1.83	2.07
		SD	.39	.45
		N	16	58
FALL QUARTER	GPA	Mean	2.37	2.69
		SD	.76	.77
		N	20	69
	CCR	Mean	.91	.93
		SD	.24	.18
		N	20	69
CUMULATIVE THROUGH FALL QUARTER	GPA	Mean	2.42	2.82
		SD	1.04	.62
		N	20	69
	CCR	Mean	.86	.89
		SD	.24	.26
		N	20	71
SPRING QUARTER	GPA	Mean	2.35	2.48
		SD	1.05	1.14
		N	18	66
	CCR	Mean	.77	.72
		SD	.34	.37
		N	18	66
WRITING CURRICULUM ONLY				
1421	GPA	Mean	3.05	3.23
	CCR	Mean	.95	.81
		N	20	53
1422	GPA	Mean	2.89	3.04
	CCR	Mean	.72	.85
		N	20	52

GPA: grade point average
CCR: credit completion ratio

TABLE 10
STUDENT SELF-ESTEEM AND WRITING APPREHENSION

Janis-Field Self-Esteem Scale		Learning disabled Students (N = 17)	Non-learning disabled Students (N = 39)
Pre	Mean	3.46	3.52
	SD	.67	.49
Post	Mean	3.54	3.69
	SD	.65	.41

Daly-Miller Test of Writing Apprehension		Learning disabled Students (N = 15)	Non-learning disabled Students (N = 35)
Pre	Mean	78.33	63.06
	SD	16.05	14.91
Post	Mean	65.60	60.31
	SD	16.86	16.70

No significant differences were found on the Janis-Field. Significant differences were found on the Daly. The reduction in apprehension from the pretest to the posttest for the learning disabled students was significant ($p = .001$); while the two groups were significantly different at entry into the Project, the differences at the end of Spring quarter were no longer significant ($p = .318$).

TABLE 11
DEMOGRAPHIC COMPARISON OF PROJECT PARTICIPANTS TO ALL COLLEGE FIRST YEAR STUDENTS

Characteristics	All GC N = 850	LD N = 21	Non-LD N = 73
Average age in years:	20.1	22.76	21.89
Sex:			
male	57.1%	63.2%	53.6%
female	41.3%	36.8%	46.4%
Ethnic Background:			
American Indian	2.9%	5.3%	1.5%
Asian/Pacific Islander	8.6%	0.0%	1.5%
Black	7.5%	5.3%	7.4%
Hispanic/Chicano	3.2%	0.0%	1.5%
Caucasian	74.9%	84.2%	82.4%
Other	1.3%	5.3%	5.9%
Have a disability:			
Yes	5.1%	100.%	3.0%
Receiving Financial Aid:			
Yes	29.5%	36.8%	40.6%
No	46.9%	57.9%	43.5%
Unsure	22.9%	5.3%	15.9%
Will work while attend college:			
No	15.3%	47.4%	10.4%
Yes, 1-10 hours/week	12.5%	10.5%	11.9%
Yes, 11-20 hours/week	29.8%	21.1%	32.8%
Yes, 21-35 hours/week	17.5%	10.5%	22.4%
Yes, 35+ hours/week	5.2%	5.3%	4.5%
Unsure	19.1%	5.3%	17.9%
Plan to transfer from GC:			
No	4.8%	5.9%	1.4%
Yes, within University	73.8%	52.9%	85.5%
Yes, outside University	3.5%	5.9%	1.4%
Unsure	17.1%	35.3%	10.1%
Education before entered GC:			
8th grade or less	.1%	0.0%	0.0%
Some high school	.9%	0.0%	0.0%
High School graduation	66.5%	78.9%	65.2%
G.E.D. diploma	4.2%	5.3%	7.2%
1 yr or less of college	20.6%	5.3%	18.8%
2 yr or more of college	4.7%	10.5%	4.3%
Other	2.5%	0.0%	4.3%

Table 11 continued

Characteristics	All GC	LD	Non-LD
Years since you attended any school:			
Less than 1 year	68.6%	52.6%	60.9%
1-2 years	17.1%	21.1%	14.5%
3-5 years	8.9%	21.1%	11.6%
6-10 years	2.5%	0.0%	11.6%
More than 10 years	2.5%	5.3%	1.4%
Highest degree you wish to obtain:			
None	3.9%	10.5%	6.0%
Certificate	1.1%	0.0%	0.0%
Associate	4.1%	5.3%	4.5%
Bachelor	46.6%	47.4%	37.3%
Masters	33.5%	31.6%	38.8%
Doctorate	7.6%	5.3%	13.4%
Intended Major:			
Don't Know	24.8%	37.5%	23.4%
Business	25.4%	18.8%	26.6%
Humanities	3.5%	0.0%	7.8%
Social Science	6.2%	12.5%	14.1%
Math/Science	11.9%	0.0%	10.9%
Med. Science	4.6%	6.3%	3.1%
Education	4.8%	0.0%	6.3%
Other	13.6%	25.0%	7.8%
Mother's Education:			
8th grade or less	3.5%	12.5%	3.1%
Some high school	5.5%	6.3%	0.0%
High school graduate/GED	32.4%	25.0%	36.9%
Some college	19.3%	25.0%	18.5%
Vocational training/certificate	8.8%	12.5%	20.0%
Bachelor's degree	16.7%	18.8%	13.8%
Master's degree	5.8%	0.0%	7.7%
Doctorate degree	1.2%	0.0%	0.0%
Father's Education			
8th grade or less	4.1%	7.1%	4.8%
Some high school	5.9%	0.0%	3.2%
High school graduate/GED	20.8%	28.6%	27.0%
Some college	15.8%	28.6%	9.5%
Vocational training/certificate	9.3%	0.0%	4.8%
Bachelor's degree	19.9%	21.4%	28.6%
Master's degree	12.6%	7.1%	20.6%
Doctorate degree	3.8%	7.1%	1.6%

TABLE 12
COMPARISON OF PROJECT PARTICIPANTS TO ALL COLLEGE FIRST YEAR STUDENTS:
SELF-PERCEPTION OF ACADEMIC PREPARATION

		All GC (N=850)	LD (N=21)	Non-LD (N=73)
Mathematical Skills	Mean	2.27	2.50	2.24
	SD	.65	.62	.69
Writing Skills	Mean	1.95	2.33	1.97
	SD	.57	.69	.62
Reading Skills	Mean	1.77	2.16	1.66
	SD	.60	.50	.59
Study Skills	Mean	2.13	2.42	2.13
	SD	.61	.51	.64
Musical and Artistic Skills	Mean	2.17	2.33	2.03
	SD	.76	.69	.81
Library and Research Skills	Mean	2.10	2.11	2.28
	SD	.63	.68	.59
Time Management Skills	Mean	2.12	2.11	2.09
	SD	.64	.47	.70
Science	Mean	2.28	2.59	2.15
	SD	.63	.62	.63
History, Social Science	Mean	2.00	2.24	1.97
	SD	.61	.56	.63
Art, Music, & Literature Appreciation	Mean	2.07	2.00	1.95
	SD	.72	.61	.79
Decision-Making Skills	Mean	1.80	1.82	1.88
	SD	.61	.64	.59
Career & College Major Plans	Mean	1.99	2.06	2.03
	SD	.66	.73	.66

TABLE 13
COMPARISON OF PROJECT PARTICIPANTS TO ALL COLLEGE FIRST YEAR STUDENTS
ENTRANCE PLACEMENT TEST SCORES

Test		LD N=21	Non-LD N=73	GC Norms 50th Percentile
Reading	Mean:	17.40	22.82	23
	SD:	8.13	6.19	
	PR:	26%	50%	
Writing	Mean:	18.15	24.31	25
	SD:	8.10	5.59	
	PR:	19%	47%	
Whole Numbers	Mean:	4.70	5.37	6
	SD:	1.59	1.43	
	PR:	25%	40%	
Arithmetic	Mean:	12.20	15.14	16
	SD:	6.41	4.94	
	PR:	20%	39%	
Algebra	Mean:	6.35	10.79	11
	SD:	5.10	11.84	
	PR:	25%	50%	

TABLE 14
COMPARISON OF PROJECT PARTICIPANTS TO ALL COLLEGE FIRST YEAR STUDENTS:
INTENT TO USE COLLEGE COUNSELING SERVICES

Type of Counseling	All GC (N=850)	LD (N=21)	Non-LD (N=73)
Financial Counseling	41.5%	52.6%	44.1%
Family Counseling	2.8%	15.8%	7.4%
Study Skills Counseling	66.1%	68.4%	52.9%
Career or Educational Planning Counseling	70.1%	57.9%	55.9%
Making Friends	13.2%	26.3%	13.2%
Marriage or Couple Counseling	1.3%	15.8%	7.4%
General Stress Reduction Counseling	8.7%	15.8%	16.2%
Chemical Dependency Counseling	1.6%	15.8%	4.4%
Test or Speech Anxiety Counseling	13.2%	15.8%	19.1%
Other Counseling	1.1%	15.8%	7.4%

TABLE 15
MICROCOMPUTER AND COMPOSITION INFORMATION

	LD (N=21)	Non-LD (N=73)
EXPERIENCE WITH MICROCOMPUTERS		
None (0)	38.1%	35.6%
little-some (1-3)	57.1%	37.0%
More than some (4 - 6)	4.8%	27.4%
TYPE OF MICRO HAVE USED		
None	38.1%	35.6%
Apple IIe	38.1%	47.5%
Macintosh	9.5%	1.7%
IBM	0.0%	5.1%
Other	4.8%	10.2%
DIFFICULTY OF WRITING: Mean:	3.57	4.16
SD:	1.47	1.17
(1-7 code, with 1=extremely difficult)		
HAVE THE FOLLOWING WRITING PROBLEM:		
Grammar	47.6%	30.1%
Punctuation	85.7%	41.1%
Handwriting	28.6%	17.8%
Spelling	85.7%	35.6%
Forming Ideas	33.3%	30.1%
Composing	57.1%	38.4%

	JAN/MAR		MARCH		MAY	
	LD N= 21	Non-LD N=73	LD N=17	Non-LD N=39	LD N=13	Non-LD N=38
ABILITY TO USE A TYPEWRITER						
Mean:	2.50	3.20				
SD:	.88	.92				
ABILITY TO USE A WORD PROCESSOR						
Mean:	3.20	3.73	3.88	3.86	4.08	3.97
SD:	1.47	1.35	.60	.70	.64	.64
ABILITY TO ORGANIZE FACTS AND IDEAS TO SUPPORT YOUR VIEWS						
Mean:	2.95	3.41	3.82	3.84	3.85	3.76
SD:	.95	.84	.62	.70	.55	.59

Table 15, continued

		JAN/MAR		MARCH		MAY	
		LD N= 21	Non-LD N=73	LD N=17	Non-LD N=39	LD N=13	Non-LD N=38
ABILITY TO KEEP OTHERS' INTEREST WHEN YOU ARE TELLING A STORY							
	Mean:	3.50	3.48	3.82	3.84	3.92	3.66
	SD:	.89	.79	.62	.70	.76	.81
ABILITY TO COMMUNICATE THROUGH WRITTEN LETTERS							
	Mean:	3.10	3.85				
	SD:	1.25	.79				
ABILITY TO COMMUNICATE THROUGH WRITTEN REPORTS							
	Mean:	2.95	3.56	3.59	3.84	3.85	3.95
	SD:	1.10	.69	.60	.74	.69	.61
IMPROVEMENT IN ABILITY TO WRITE WHEN YOU USE A TYPEWRITER							
	Mean:	2.80	3.68				
	SD:	1.24	1.05				
IMPROVEMENT IN ABILITY TO WRITE WHEN YOU USE A WORD PROCESSOR							
	Mean:	4.05	4.44	4.18	4.15	4.23	4.58
	SD:	1.43	1.26	.62	.66	.60	.55
ABILITY TO SUCCESS IN WRITING OR COMPOSITION CLASSES							
	Mean:	3.30	3.72	4.06	4.00	4.08	4.29
	SD:	.92	.74	.43	.55	.49	.57